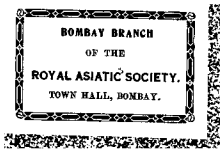
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THE

BIRDS OF ASIA.



BY

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JOHN GOULD, F.R.S.,

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VOLUME I.

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LIST OF PLATES.

VOLUME I.

Note.—As the arrangement of the Plates in the course of publication was impracticable, the Numbers here given will refer to them when arranged, and the Plates may be quoted by them.

Plate			Part	Date.
1.	Otogyps calvus	Black Vulture	XII.	June 1860.
2.	Gyps Bengalensis	Bengal Vulture	III.	June 1851.
3.	Falco Peregrinator	Shaheen Falcon	,,	,, ,,
4.	,, Babylonicus	Red-naped Falcon	XX.	April 1868.
5.	,, sacer	Saker Falcon	,,	,, ,,
6.	,, lanarius	Lanner Falcon	,,	,, ,,
7.	,, Jugger	Jugger Falcon	I.	January 1850.
8.	Erythropus amurensis	White-winged Red-footed Kestrel	XXXII.	July 1880.
9.	Spilornis rufipectus	Rufous-breasted Spilornis	XII.	June 1860.
10.	Spizaëtus alboniger	Black-and-white Crested Eagle.	XV.	June 1863.
11.	Milvus Govinda	Govinda Kite	IV.	November 1852.
12.	Elanus hypoleucus	Celebean Elanus	XII.	June 1860.
13.	Scops pennatus	Indian Scops Owl	XXII.	March 1870.
14.	Phodilus badius	Bay Owl	,,	,, ,,
15.	Athene Brodiei	Brodie's Owlet	,,	,, ,,
16.	Syrnium ocellatum	Speckled Wood-Owl	,,	,, ,,
17.	Strix indica	Indian Screech Owl	XXIV.	March 1872.
18.	,, candida	Grass-Owl	,,	,, ,,
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20.	Cypselus infumatus	Palm Roof-Swift	XXIV.	March 1872.
21.	Dendrochelidon coronatus	Crested Tree-Swift	XI.	May 1859.
22.	,, Klecho	Klecho Tree-Swift	,,	,, ,,
23.	,, Wallacei	Wallace's Tree-Swift	,,	,, ,,
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25.	,, comatus	Hooded Tree-Swift	,,	,, ,,
26.	Hirundo filifera	Wire-tailed Swallow	XVIII.	April 1866.
27.	Cecropis rufula	Western Mosque-Swallow	XX.	April 1868.
28.	,, Daurica	Daurian Mosque-Swallow	,,	,, ,,
29.	,, erythropygia	Indian Mosque-Swallow	,,	,, ,,
30.	,, hyperythra	Ceylonese Mosque-Swallow	,,	,, ,,
31.	Delichon Nipalensis	Nepal Martin-Swallow	,,	,, ,,
32.	Hypurolepis domicola	Bungalow Swallow	,,	,, ,,
33.	Lageneplastes fluvicola	Indian Cliff-Swallow	,,	,, ,,
34.	Merops quinticolor	Pirik Bee-eater	VIII.	May 1856.
35.	,, viridis	Hurrial Bee-eater	VII.	April 1855.
36.	,, Philippinus	Philippine Bee-eater	,,	,, ,,
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38.	,, amictus	Red-throated Nyctiornis	,,	,, ,,
39.	Meropogon Forsteni	Forsten's Bee-eater	XXV.	March 1873.
40.	Actenoides Hombroni	Hombron's Kingfisher	XXIX.	April 1877.
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Plate			Part	Date.
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44.	„ gularis	Manilla Kingfisher	„	„ „
45.	„ atricapillus	Black-capped Kingfisher	XII.	June 1860.
46.	„ fulgidus	Blue-and-white Kingfisher	„	„ „
47.	„ omnicolor	Many-coloured Kingfisher	„	„ „
48.	Carcineutes pulchellus	Banded Kingfisher	XXXII.	July 1880.
49.	„ melanops	Black-faced Kingfisher	„	„ „
50.	„ amabilis	Tenasserim Kingfisher	„	„ „
51.	Dacelo Tyro	Mantled Kingfisher	XII.	June 1860.
52.	Alcedo grandis	Great Alcedo	XXII.	March 1870.
53.	„ Bengalensis	Indian Kingfisher	XIV.	May 1862.
54.	Coracias indica	Indian Roller	XXI.	April 1869.
55.	„ affinis	Burmese Roller	„	„ „
56.	„ Temminckii	Temminck's Roller	„	„ „
57.	Eurylaimus Javanicus	Javan Eurylaime	V.	October 1853.
58.	„ ochromelas	Hooded Eurylaime	„	„ „
59.	Cymbirhynchus macrorhynchus	Great-billed Eurylaime	„	„ „
60.	„ affinis	Allied Eurylaime	„	„ „
61.	Corydon Sumatranus	Great Eurylaime	„	„ „
62.	Serilophus lunatus	Lunated Eurylaime	„	„ „
63.	„ rubropygius	Red-backed Eurylaime	„	„ „
64.	Psarisomus Dalhousiæ	Dalhousie's Eurylaime	„	„ „
65.	Sarcophanops Steerii	Steere's Broadbill	XXX.	October 1877.
66.	Upupa nigripennis	Indian Hoopoe	XXXII.	July 1880.
67.	Harpactes Duvaucelii	Duvaucel's Trogon	XI.	May 1859.
68.	„ rutilus	Malacca Trogon	„	„ „
69.	„ Hodgsoni	Hodgson's Trogon	XVII.	April 1865.
70.	„ Diardi	Diard's Trogon	„	„ „
71.	„ Oreskios	Mountain Trogon.	„	„ „
72.	„ Reinwardti	Reinwardt's Trogon	„	„ „
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PREFACE.

The late Mr. Gould shortly before his decease told me his wishes with regard to such of his works as should remain unfinished at the time of his death; and it is in accordance with these instructions that the 'Birds of Asia' has now been brought to a close.

The work was commenced in 1850, and during the thirty-three years that have elapsed no less than 530 species have been figured; but of course a large number of Asiatic species still remain unnoticed. The long connexion which had existed between Mr. Gould and ornithologists in all parts of the globe enabled him to obtain an early sight of rare and newly described species; and consequently many birds are figured in the present work, illustrations of which are not to be found elsewhere. Had the author lived he would doubtless have endeavoured to complete the 'Birds of Asia' in its entirety, as the subject was one in which he took the greatest personal interest. As far as the writer is concerned, he has had but a small duty to perform, as the Plates for the concluding parts of the work had nearly all been designed by Mr. Gould before his death, and have been faithfully produced on stone by his old and valued coadjutor Mr. Hart.

I have endeavoured to write the concluding articles as I believe Mr. Gould would have wished them to have been done, and as far as possible in harmony with the rest of the work. In every case the initials "R. B. S." are appended, so that any errors or omissions can be saddled on the right shoulders.

The work has been arranged according to the classifications adopted by Mr. Gould throughout his lifetime; and in giving title-pages and indexes to the species, I have added the exact dates of publication, for the benefit of ornithologists who wish to quote the work.

R. BOWDLER SHARPE.

August 1883.

INTRODUCTION.

It having been suggested to us by Mr. Sotheran, the proprietor of the late Mr. Gould's Ornithological Works, that some few introductory remarks on the completion of the 'Birds of Asia' (one of the works left unfinished at the death of the late Mr. Gould) would be acceptable to the Subscribers, we have attempted to give a brief outline of the history of Asiatic ornithology during the past thirty years. It is difficult for us, whose path has been smoothed by the labours of the excellent ornithologists who have devoted themselves to the study of oriental birds, to carry our minds back to the year 1850, when Mr. Gould commenced to write the present work on the Birds of Asia, at a time when such names as those of Hume, Blanford, Davison, David, Prjewalsky, Severtzoff, and Swinhoe were unknown to fame. In 1850 the golden age of ornithology was but commencing, 'The Ibis' was not yet published, and such an idea as the calling into existence of a journal entirely devoted to Indian ornithology was undreamt of. Only one year previously had Gray completed his great work on the Genera of Birds, which tabulated and placed in order all the then known genera and species; and this was closely followed by the 'Conspectus Avium' of Prince Bonaparte and the 'Catalogue of the Museum Heineanum' of Dr. Cabanis. But although the three last mentioned works will always be celebrated for the order which they introduced into the Class *Aves*, their work did not affect Asiatic ornithology in particular, and the credit of first setting in order the ornithology of India rests with two naturalists—Jerdon and Blyth. Before Mr. Gould's work commenced, the former had finished his 'Catalogue of the Birds of the Peninsula of India,' while for many years Mr. Blyth had been engaged in publishing those important notes and synopses of Indian birds, in the 'Journal of the Asiatic Society of Bengal,' which even at the present day are studied with advantage by the ornithologist. Then,

in 1849, appeared Mr. Blyth's 'Catalogue of the Birds in the Museum of the Asiatic Society,' wherein were incorporated the results of all his previous labours, as well as those of Jerdon. Another writer, Lord Arthur Hay, in future to be better known to the scientific world after his accession to the titles of Viscount Walden and Marquis of Tweeddale, had also written one or two small papers on Indian Birds; and Mr. Gould had himself published his illustrated folio work entitled "A Century of Birds from the Himalaya Mountains." A great change, however, had taken place in our knowledge of Himalayan birds since the day when it was considered of importance to figure one hundred species from this part of India. This was due to the exertions of Mr. B. H. Hodgson, the British Resident in Nepal, who as early as the year 1836 commenced to publish papers in which he introduced to the notice of naturalists some animals of the greatest interest from the hill regions of Nepal. His enormous collections were presented by him to the British Museum in 1843 and 1845, together with a complete set of native drawings, which are remarkable for their accuracy and give many details of the anatomy of the species figured. In 1844 Mr. Hodgson gave a complete catalogue of the Birds of Nepal in Gray's 'Zoological Miscellany,' founded on the above-named drawings and his own ample collections. In 1849 he again presented the British Museum with a collection of animals, and gave largely to the museums of other countries also, Blyth's 'Catalogue' testifying to his munificence as regards Calcutta. On his return to India his subsequent collections were given to the Indian Museum at Fife House; but after the closing of that establishment he again presented a large number of specimens to the British Museum, in 1859. Two lists of Mr. Hodgson's donations have been published by the Trustees of the last-named institution—one in 1846, and another in 1863.

In commencing to write the 'Birds of Asia,' Mr. Gould followed the majority of naturalists in treating the continent according to its political boundaries. In those days it must be remembered that Dr. Sclater had not revolutionized the study of ornithology by his division of the earth into natural zoo-geographical regions, nor had Mr. Wallace arisen to point out to us the demarcation between the Indo-Malayan and Austro-Malayan subregions, while the existence of a Mediterraneo-Persic subregion had not been forced upon the attention of ornithologists. We have not space here to discuss in detail the zoo-geographical divisions of the continent of Asia; but the natural divisions into which it is partitioned may be studied to advantage in two works—Mr. Wallace's 'Geographical Distribution of Animals,' and Captain Elwes's paper entitled "On the Geographical Distribution of Asiatic Birds," published in the 'Proceedings of the Zoological Society' for 1873.

It will therefore be understood that, when the late Mr. Gould commenced his work, the area which

he intended to embrace was a very large one; and it is not surprising that thirty-three years should have been insufficient to complete less than a quarter of the undertaking. Species from Palestine to the westward, and from the Moluccas to the east, have been figured in the 'Birds of Asia;' and it is equally certain that a larger number of new species have been discovered by ornithologists in the course of a year than were figured by Mr. Gould in the single part of the 'Birds of Asia' which he issued annually. It may not be uninteresting, however, to glance rapidly over the countries included in Asia by the author of the present work, and to estimate the increase of knowledge which has taken place since he commenced his gigantic task. Of the ornithology of Siberia but little was known up to the year 1850, beyond the writings of the old Russian travellers Pallas and Gmelin. Since the above-mentioned date, the explorations of Middendorff, of Schrenck, and Radde have greatly increased our knowledge, while the travels of Dr. Finsch on the river Ob added many interesting particulars respecting that region. One of the most important expeditions, however, to this portion of northern Asia, was that undertaken by our countryman Mr. Henry Seebohm, who in 1877 visited the valley of the Yen-e-say, discovered the breeding-places of many birds (unknown up to that date), and brought back large collections of animals from that little-known portion of the globe. His experiences and adventures are related in his work 'Siberia in Asia,' one of the most entertaining books of travel which it has ever been our lot to peruse. Central Asia remained for a long time a *terra incognita* to the naturalist; but about the year 1872 Dr. Severtzoff commenced to publish the results of his journeys through Turkestan, while at the same time the mission to Yarkand despatched by our government, under the leadership of Sir Douglas Forsyth, was also successful from an ornithological point of view; and the book 'Lahore to Yarkand,' published by Mr. A. O. Hume and Dr. Henderson the naturalist to the expedition, is full of interest to the ornithologist. South-western Asia, or at least that part of it embraced in the Mediterraneo-Persic subregion of modern writers, still requires considerable exploration before we can be considered to have a thorough knowledge of its ornithology. The birds of the Caucasus have been treated of by Ménétriés; and more recently Professor Bogdanoff has published a work on the species inhabiting this region, which, however, from being written in Russian, will, like Dr. Severtzoff's 'Fauna of Turkestan,' be unintelligible to the great majority of readers. Filippi's 'Viaggio in Persia' also contains a useful list of the birds met with by him; but by far the most important work on the zoology of Persia is that of Mr. W. T. Blanford, who has given a very complete account of the birds obtained by him during his travels from Baluchistan through Persia to

the Caspian. This work on Eastern Persia also contains an account of the collections made by Sir Oliver St. John during his residence near Shiraz. When we come to Afghanistan we have the excellent observations of Captain Hutton on the Birds of Kandahar, published in 1845 and 1846, and the more scattered notices of the collections made by Dr. Samuel Griffith in the same country, as recorded by Messrs. Horsfield and Moore in their 'Catalogue of the Birds in the Museum of the East India Company.' Besides these there are some excellent papers by Colonel Swinhoe, Captain Wardlaw Ramsay, and Serjeant Barnes, giving an account of the birds observed by them during the last Afghan war.

As regards British India, we have already alluded to the state of its ornithological record up to the year 1850, when the labours of Blyth and Jerdon had done so much to prepare the way for the successful issue which has since uninterruptedly followed. Ceylon appears to have been the next place to be explored by working ornithologists; and Mr. E. L. Layard contributed in 1853 some very interesting notes on the birds of that country, supplementary to the catalogue published by Dr. Kelaart in his 'Prodromus Faunæ Zeylonicæ.' But in the year 1854 a most important work on Indian ornithology was issued, which we consider to have had a great effect upon the recent studies of ornithologists. This was the 'Catalogue of the Birds in the Museum of the East India Company,' a work which bears on its title-page the names of Dr. Horsfield and Mr. F. Moore, but which is known to have been prepared entirely by the last-named naturalist. The importance of this Catalogue consists in the fact that it gathers together into one compass all the scattered literature of Indian birds which existed up to that period, and is especially valuable as containing a connected list of references to Mr. Blyth's papers spread over many volumes of the Asiatic Society's 'Journal.' It must therefore never be forgotten that in that year ornithologists possessed for the first time a nearly complete literature of Indian birds, as far as the Accipitres, Passeres, and Picariæ are concerned. A lull then appears to have taken place in Indian ornithology, broken only by occasional papers from Mr. Blyth, Colonel Tickell, and other field-naturalists, until the year 1862, when Dr. Jerdon brought out the first volume of his 'Birds of India.' This book, which was published in three octavo volumes, was completed in 1864; and, equally by naturalists at home as by field-ornithologists in India, it has been recognized as the standard work on Indian ornithology. Many years must elapse before its utility will be impaired; and it is certain that every one writing on the birds of India has to take Jerdon's book as his starting-point. Mr. Blyth's able critique on this book in 'The Ibis' added

considerably to its importance; and in 1872 Dr. Jerdon himself contributed a series of supplementary notes to the last-mentioned journal: these have been duly recorded in a second edition of the 'Birds of India,' published under the superintendence of Colonel Godwin-Austen. A very interesting MS. work by the late Colonel Tickell, with beautifully painted pictures of Indian birds, has also been presented to the library of the Zoological Society.

If, however, Indian ornithology is indebted to an incalculable extent to the labours of Blyth and Jerdon, there is at least one naturalist whose claim to equal rank with the above-named pioneers will be admitted by every future historian of the subject. This is Mr. A. O. Hume, who for the past fifteen years has worthily trod in the footsteps of his renowned predecessors; and one cannot but regret that neither Blyth nor Jerdon have survived to see the results of their early studies as pushed towards such a brilliant conclusion by Mr. Hume. To attempt to write on Indian birds without consulting the pages of 'Stray Feathers,' which is the curiously chosen title of Mr. Hume's journal, would be as impossible as for any one to essay to write a history of Neotropical birds without referring to the works of Dr. Sclater or Mr. Salvin. Suffice it to say that Mr. Hume has succeeded in interesting a large number of ardent naturalists in a study of the birds of India; and although he has been singularly fortunate in the number and calibre of his coadjutors, the credit of the extraordinary advance which the study of Indian ornithology has made during the last twelve years is mainly due to the energy of Mr. Hume himself. Not only does his journal contain useful lists of species from various parts of the Indian peninsula, but important essays will be found therein on the ornithology of Yarkand, Afghanistan, Sindh, Tenasserim (occupying an entire volume of 524 pages), and the Malayan peninsula. In England, too, considerable energy has been shown in the study of Indian ornithology. Besides the uninterrupted issue of the 'Birds of Asia,' this country was indebted to the late Marquis of Tweeddale for many of the most valuable memoirs ever written on birds. His large collections and his intimate knowledge of ornithological literature rendered him the first authority on Asiatic ornithology in this country; and his untimely death was mourned by the entire scientific world.

The islands in the Bay of Bengal have been thoroughly explored on Mr. Hume's behalf by Mr. W. Davison, probably one of the best collectors that science has ever known; and it is to this same gentleman that we are indebted for the successful ornithological results in Tenasserim and the Malayan peninsula. Captain Wardlaw Ramsay has also largely contributed to our knowledge of the avifauna of the Andaman

Islands. The history of the 'Birds of Ceylon' by Major Vincent Legge is simply a model work. Having resided in the island for seven years, he devoted his attention to its ornithology, and has published the results of his studies in a large quarto volume of 1237 pages.

No connected account has yet been published of the birds of Assam and the hills of North-eastern Bengal, such as the Khasia, Naga, Garo, and Munipur hills. McClelland collected a certain number of specimens in Assam, which were presented by him to the India Museum, and are now in the national collection. They are mostly wretchedly preserved, and are without any indication of locality, sex, or date of capture. To Colonel Godwin-Austen we are indebted for scattered lists of the birds procured by him and his assistants during the surveys of the hill-ranges of North-eastern Bengal; and a connected account of the ornithological results obtained by these expeditions would be of the greatest assistance to students. These hill-ranges seem to have been well explored by Colonel Godwin-Austen, who has described some beautiful new species, and whose collection of birds from these localities is very extensive.

The province of Arracan is almost unknown as regards its ornithology. In 1875 the late Mr. Blyth prepared a list of the "Birds of Burmah;" but unfortunately his death prevented the publication by his own hands: it was, however, most ably edited by the late Marquis of Tweeddale [then Lord Walden], who not only added his own information on the subject, but included the birds recorded shortly before by Mr. Hume from Tenasserim, and the important collections made by Captain Wardlaw Ramsay in the State of Karen-nee. We have not yet alluded to the labours of an excellent naturalist in Pegu, Mr. Eugene W. Oates, who has quite recently incorporated the results of his former papers along with those of other field-naturalists in an admirable 'Handbook to the Birds of British Burmah.' This work gives a concise account of his own researches in Pegu, and those of Mr. Davison and Captain Bingham in Tenasserim. We may refer to this work, one of the best of its kind ever written, as proving by the numberless instances in which Mr. Hume's name is quoted, the immense influence which he has exercised on Asiatic ornithology.

Here must be mentioned also the work by Dr. Anderson on the zoological results of the second expedition to Yunnan. Unfortunately this expedition did not succeed in penetrating further than the frontiers of the latter province; but many interesting observations were made during the brief stay of the above-named naturalist in Yunnan, and on the route traversed by the expedition

through native Burmah. The ornithology of Cochin China is well represented in the Paris Museum; and Dr. Tirand has published a useful list of the birds of that country.

With the ornithology of China the name of the late Consul Swinhoe will be inseparably connected. Numerous contributions from his pen were published in 'The Ibis;' and two complete lists of the birds of China were issued in the 'Proceedings of the Zoological Society' for 1863 and 1871 respectively. In 1877, however, a very complete work on Chinese ornithology appeared from the pens of Abbé David and Dr. Oustalet, whose book, entitled 'Les Oiseaux de la Chine,' embodies not only Mr. Swinhoe's discoveries, but likewise the results of the travels of Abbé David throughout China as well as those of Colonel Prjewalsky in Mongolia and Thibet. A complete account of the ornithological observations made by the latter traveller was also translated from the Russian, and published in the late Mr. Dawson Rowley's 'Ornithological Miscellany.'

We may here remark on the explorations of Dr. Dybowski and other Russian travellers in the region of Lake Baikal and Eastern Siberia, a synopsis of which has been written by Dr. Taczanowski in the 'Bulletin' of the French Zoological Society. As regards Japan, there appeared in 1850 the beautiful illustrated work on the Fauna Japonica by Temminck and Schlegel, wherein are seen some fine pictures of birds, some of them drawn by Professor Schlegel himself, while others are early examples of that great zoological draughtsman Joseph Wolf. After that but little was written on the ornithology of the Japanese Islands until 1867, when a list of the birds collected by Mr. Henry Whitely (since celebrated for his explorations in Peru and Guiana) appeared in 'The Ibis;' but more recently two good field-naturalists, Captain Blakiston and Mr. H. Pryer, have published a list of the Birds of Japan; and Mr. Seebohm has also devoted some attention to the ornithology of this part of Asia.

Lastly we have to consider the ornithology of the Indo-Malayan subregion. In 1854 a list of the birds of Malacca collected by Dr. Cantor was commenced by Mr. F. Moore; but the best accounts of the birds of the Malayan peninsula are those of Mr. Hume in 'Stray Feathers' (founded on the collections made by Mr. Davison in the western half of the peninsula), and of Lieut. Kelham in 'The Ibis.' Mr. Davison has proved by his researches that many of the Malayan birds range into Southern Tenasserim; and it is much to be regretted that this energetic collector has been disabled by the state of his health from exploring the eastern half of the Malayan peninsula, which is zoologically absolutely unknown. It will remain for some future explorer, therefore, to

visit this dangerous and unknown region, when, as an ornithological result, it will doubtless be discovered that many species inhabiting the Eastern Himalayas and the hills of Burmah and Tenasserim extend their range to the mountains of Java and Sumatra along the elevated ridge which forms the backbone of the Malayan peninsula.

For our knowledge of the ornithology of Sumatra we are still mainly dependent upon the collections of the old Dutch travellers, Solomon Müller and others, who penetrated the mountain-ranges of the island; if we except the successful expedition made by Dr. Beccari in 1878, and the more recent researches of Mr. H. O. Forbes, lately recorded by Mr. F. Nicholson. The collections made near the coast, such as those of the late Mr. E. C. Buxton in Lampong, mainly resulted in the procuring of common Malayan and Bornean forms.

But little has been written on the ornithology of Java. Horsfield's list of the birds procured by him, and subsequent observations by Dr. Bernstein, Mr. H. O. Forbes, and Mr. Vordeman comprise nearly all we know of the ornithology of the island; but rich collections are contained in the Leiden Museum, and the British Museum likewise possesses a good series prepared by Mr. Wallace, and by no means the least valuable result of that naturalist's expedition to the East.

With the ornithology of Borneo we are much better acquainted, thanks to the excellent work of Count Salvadori, the 'Uccelli di Borneo,' which contains a complete record of the avifauna of the island up to the year 1874. Since that date Mr. Alfred Everett and his brother Mr. Henry Everett in Sarawak, Mr. Hugh Low and the late Governor Ussher in Labuan and the provinces of Brunei and Lumbidan, and Mr. W. B. Pryer in Sandakan, have added greatly to our knowledge of the birds of Borneo, and have shown that the relations of its avifauna are mostly with that of Sumatra and the Malayan peninsula, that few forms are peculiar to the island, and that it receives a considerable migratory influx of Siberian and Eastern Asiatic forms which make Borneo their winter home.

Our knowledge of the avifauna of the Philippine Islands has also been vastly increased since Mr. Gould commenced the present work. Many species had been recorded by Sonnerat and the older writers; but their accounts were often confused and meagre, and it was not till the late Mr. Cuming had visited the archipelago that British ornithologists received any definite and trustworthy information respecting the birds of the Philippine Islands. The Prussian expedition to Eastern Asia

resulted in the publication of a list of Philippine birds by Dr. von Martens, which, however, was not very satisfactory; but the explorations of Dr. A. B. Meyer were of more enduring importance, as it was principally on his collections that the excellent memoir on the Birds of the Philippine Archipelago by the Marquis of Tweeddale was founded. Following closely upon this, we ourselves published a list of the birds obtained by Dr. Steere, who visited many of the islands on which no naturalist had before set foot, and whose collections contained a large number of new forms. Perhaps the most interesting result of Dr. Steere's expedition was the demonstration that the Philippine Island of Palawan possessed a distinct Bornean and, therefore, Malayan element—a result which has been amply confirmed by Mr. Alfred Everett in the same island. The latter naturalist was sent by Lord Tweeddale; and his expedition has proved to be one of the most important ever undertaken in the Indian region. Like Dr. Steere he also visited many islands not before trodden by an ornithologist, and obtained a large number of beautiful novelties.

Such is a brief retrospect, as far as our experience allows us to make it, of the progress of oriental ornithology since the year 1850, when Mr. Gould issued his first part. Every one must admit that it would be far easier now to attempt such a work, although so vast is the extent of the Indian region that each year records a large increase in our knowledge of Asiatic birds. It would almost seem as if we had now once more reached a period of quiescence, such as supervened upon the publication of Horsfield and Moore's 'Catalogue,' and Jerdon's 'Birds of India.' Let us hope that this is not the case, and that Mr. Hume, who has done so much for the increase of our knowledge of Indian birds, will not allow his pen to remain dry, that Colonel Godwin-Austen will, on the termination of his present important work on Mollusca, be induced to give us a connected catalogue of the birds of North-eastern Bengal, that Captain Wardlaw Ramsay will publish a catalogue of the Tweeddale collection, and that Mr. Blanford will not allow his retirement from India to interfere with the publication of his useful works on the zoology of that portion of the globe.

R. BOWDLER SHARPE.

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OTOGYPS CALVUS.

J. Wolf and H. C. Richter, del. et lith.

Hullmandel & Walton, Imp.

OTOGYPS CALVUS.

Black Vulture.

Vultur calvus, Scop. Del. Flor. et Faun. Insub., p. 85.

Le Vautour royal de Pondichéry, Sonn. Voy. aux Ind., tom. ii. p. 182, pl. 104.

Vultur Ponticerianus, Shaw, Nat. Misc., pl. 941.—Gray, Ill. Ind. Zool., pl. 15. fig. 1.—Bonap. Consp. Gen. Av., p. 10, *Vultur*, sp. 3.—Lath. Ind. Orn., vol. i. p. 7.—Shaw, Gen. Zool., vol. vii. p. 25.—Temm. Pl. Col. 2; Ann. du Mus., tom. i. pl. 20.—Daud. Orn., tom. ii. p. 11.—Bonn. et Vieill. Encyc. Méth. Orn., part iii. p. 1173, pl. 196. fig. 2.—Dict. d'Hist. Nat., tom. xxxv. p. 260.

Otogyps calvus, Gray and Mitch. Gen. of Birds, vol. i. p. 6, *Otogyps*, sp. 2.—Gray, List of Birds in Coll. Brit. Mus., part i. *Accipitres*, p. 4; Ib. 2nd. edit. p. 5.—Adams in Proc. of Zool. Soc., part xxvii. p. 469.—Tytler in Ann. and Mag. Nat. Hist., 2nd ser. vol. xiii. p. 366.—Burgess in Proc. of Zool. Soc., part xxii. p. 1.

Hemigyps ponticerianus, Hodgs. Gray, Zool. Misc. 1844, p. 81.

Pondicherry Vulture, Lath. Gen. Syn. Supp., p. 6.—Id. Gen. Hist., vol. iv. p. 22.

The *Otogyps calvus* is a truly Indian species, for it inhabits every part of that great peninsula; but it is not so gregarious, nor found in such great numbers, as the other members of the genus.

Dr. Adams states that "It is found in Bengal, the Deccan, and Lower Himalayan Range, but does not travel any distance into the interior of the mountains. This species is easily distinguished from the other Vultures by the red colour of the skin and neck. In size it is less than *Gyps Bengalensis*, the total length being about 2½ feet."

But by far the most valuable account of this species is that given by Captain Burgess, in the 'Proceedings of the Zoological Society of London' for 1854, where he says:—

"This Vulture, as far as I had opportunities of observing it, is much more common in the Deccan than either the large (*Vultur indicus*) or the small brown Vulture (*Vultur Bengalensis*). I have never, however, seen more than two or three together, and these generally in the low ranges of hills which intersect that part of the country. As this bird has doubtless been already figured, it is not my purpose in these notes to enter into any description of it, but merely to state what I have observed of its habits, food, manner and time of nesting, with any other information regarding it which I may have gained by actual investigation, or learned from credible sources. In its habits this Vulture, I should certainly say, is not gregarious: I do not remember to have seen more than four or five together; and then it has been for the purpose of partaking of a social meal. It flies in circles, with the wings extended, apparently without motion, and with their tips pointed upwards, the legs being stretched out beneath the tail. The food consists of decaying animal substances: one which I shot drinking in a stream disgorged the entire leg of a cat. It breeds during the months of February and March. In my notes taken at the time I find the following:—'March 7.—Found to-day, on the top of a rather low Peepul (a species of Banian tree), the nest of a Black Vulture, on which one of the old birds was sitting. The nest, which was very large, was built of small sticks; it contained one egg. On the same tree, a pair of the Black-headed Ibis (*Tantalus melanocephalus*) had also built their nest. . . . . March 19.—Shot a male Black Vulture sitting on one egg; the nest was about a yard in circumference, built on the top of a thorny tree; it was composed of the thorny branches, and other sticks below it. Among the thorny twigs forming the nest were two small nests, belonging to birds of the Passerine order, containing young.' In both these cases only one egg was found, of a pure white colour, $3\frac{8}{10}$ inches in length by $3\frac{1}{10}$ inches in width. In a third also only one egg was found. The natives say the bird lays two eggs, containing a male and a female bird; but these facts seem opposed to such a statement."

I am indebted to J. H. Gurney, Esq., for permission to copy the drawing of this species of Vulture, made for him by Mr. Wolf from a fine living example.

Base of the bill, face, and wattles naked and of a dull red; ruff at the base of the neck white; downy feather on the fore part of the neck pale brown; the remainder of the plumage black, with a wash of grey on the shoulders and the outer webs of the primaries; legs and feet deep pinkish red; nails black.

The figure, which represents a fully adult male, is about one-third of the natural size.



GYPS BENGALENSIS.

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

GYPS BENGALENSIS.

Bengal Vulture.

Vultur Bengalensis, Gmel. Syst. Nat., tom. i. p. 245, young.—Gray, Ill. Ind. Zool., pl. 15.—Lath. Gen. Syn., vol. i. pl. 1.—Id. Supp., p. 3.—Vieill. Nouv. Dict. d'Hist. Nat. 2nd Edit., tom. xxxv. p. 247.—Ib. Ency. Méth. Orn., part iii. p. 1168.—Lath. Ind. Orn., vol. i. p. 3.—Shaw's Gen. Zool., vol. vii. p. 30.

——— *Changoun*, Daud. Traité d'Orn., tom. ii. p. 14, adult.

——— *leuconotus*, Gray, Ill. Ind. Zool., pl. 14, adult.

——— *Indicus*, Scop. Del. Flor. et Faun. Insub., p. 85?—Sonn. Voy., tom. ii. p. 183. pl. 105?

——— *Changoun*, Vieill. Nouv. Dict. d'Hist. Nat., tom. xxxv. p. 248?—Ib. Ency. Méth. Orn., part iii. p. 1169.

Gyps Bengalensis, G. R. Gray, List of Birds in Brit. Mus. Coll., part i. p. 3, 2nd Edit. p. 6.—Gray and Mitch. Gen. of Birds, vol. i. p. 6, *Gyps*, sp. 2.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 33.

Bengal Vulture, Lath. Gen. Hist., vol. i. p. 24. pl. 4.

This species, one of the smallest of the typical Vultures, is very abundant in all parts of India, and is a summer visitant in Afghanistaun; specimens from the neighbourhood of Calcutta are contained in the Museum of the Asiatic Society of that city, and it is figured in the Drawings of the late Hon. F. J. Shore from a specimen killed at Hurdwar. Latham and some other authors state that it also inhabits Africa, but I have never seen any example from that country, and have therefore no doubt that they have confounded it with some nearly allied species. The specific term of *Bengalensis*, too, is singularly inappropriate for a bird ranging so widely over the country; but although in the first instance assigned to the young only, it must, according to the rule of priority, be the one retained; otherwise the term *leuconotus* bestowed upon the adult by Mr. Gray would be very descriptive.

From the notes of the Hon. F. J. Shore I learn that the bird is called *Gid* or *Geed* by the natives of Hurdwar, and *Guroor* by the Guhrwalles; and Latham states that it is called *Gurra* in Hindostan and *Kurges* in some other parts of India.

No account whatever has been given of its habits and economy, which has doubtless arisen from their being so similar to those of the other members of the group, that a particular description of them has been deemed unnecessary. My figure is taken from a fine adult specimen in the Gardens of the Zoological Society, where it has resided for many years, and borne its captivity with the usual stolid indifference of its race.

Skin of the head and neck purplish brown covered with thinly dispersed hair-like brown feathers; on the lower part of the neck a ruff of white lengthened feathers, the ruff being broadest at the back of the neck and decreasing in breadth until it meets in front; general plumage dark greyish slate-colour, becoming of a silvery hue on the under surface, and some of the breast feathers margined with white; back snow-white, but not perceptible when the wings are closed; bill dark horn-colour; irides dark brown; legs and feet greyish purple.

The figure represents the bird somewhat more than half the natural size.



FALCO PEREGRINATOR, *Sund.*

Shaheen Falcon.

Falco peregrinator, Sundev. Physiogr. Sellsk. Tidsk. 1837, 1838, p. 38.—Kaup, Isis, 1847, p. 74.—Jerd. Ill. Ind. Orn., pl. xxvii.—List of Birds in Brit. Mus. Coll., Part I. 2nd edit. p. 50.—Cat. of Sp. and Draw. of Mamm. and Birds pr. to Brit. Mus. by B. H. Hodgson, Esq., p. 44.—Gray and Mitch. Gen. of Birds, vol. i. p. 19, *Falco*, sp. 5.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 14.—Ib. Consp. Orn. Ind. &c. Journ. Asiat. Soc. Beng. 1850, p. 321.

—— *Shaheen*, Jerd. Madr. Journ. Lit. and Sci. 1839, p. 81.—Ib. Ill. Ind. Orn., pl. xii.

—— *Aldrovandi*, Ib.

—— *Sultaneus*, Hodgs.—Gray, Zool. Misc. 1844, p. 81.

—— *rhombeus*, Lath. Ind. Orn., vol. i. p. 35?

—— *ruber indicus*, Aldrovand. (Blyth).

Bahari-bacha of the Indian Falconers.

Sháheen (Royal) Female, *Kocla* (Charcoal) Male, } Hindustanee.

Jawolum, Telugu.

Wálliér, Tamul.



This species offers so many points of close resemblance to the Peregrine Falcon, that by the casual observer it would be considered identical with that bird; but notwithstanding its similarity, it will be found, as shown by Sundevall, Kaup, and other writers, to possess characters sufficiently different to warrant its being considered distinct: it is very widely dispersed over the greater part of India, but does not appear to be abundant in any particular locality.

Not having had the advantage of seeing the bird in its native wilds, I have ventured to extract the greater portion of the very interesting account of its habits and economy published by Mr. Jerdon in his "Illustrations of Indian Ornithology."

"The Shaheen," says Mr. Jerdon, "appears to be spread throughout the whole of India, from the Himalayas to the extreme south of the Peninsula. Of its range out of India we have at present no correct information, but in several works on Falconry I have seen in this country, Persian, Toorkish and Arabic names are assigned to it, so that it may occur in other parts of Asia. It is far from being a common bird, but I have had few opportunities of observing it in its wild state. It is, however, well-known to the native falconers, who have from time immemorial been acquainted both with its breeding-places and its most favourite haunts. I have myself obtained it in the South of Travancore and in Malabar, and have seen it on the Neilgherries, and on the northern Ghauts, at the celebrated hill-fort of Untoor, where I had long before been informed there was an eyrie.

"The habitual resorts of this Falcon are high rocky hills in the neighbourhood of jungle and forest land, whether in a low or mountainous country, though the latter is always preferred. In the Carnatic, which is nearly devoid of forest, the Shaheen is but seldom met with, yet there are certain spots even here where individuals of the species resort to after the breeding-season, being chiefly young birds, and they are known to breed in various parts of the range of Eastern Ghauts. Its habits in a wild state vary somewhat according to the kind of country frequented. If a denizen of a forest, it watches on some lofty tree at the skirts of a glade, or hovers over it, ready to pounce on any unlucky bird that ventures to cross. In more open country it is necessitated to take a wider circuit in search of its prey, and is of course much more on the wing. Such birds are more highly prized for training than forest-bred birds, which are, therefore, seldom sought for. This Falcon destroys large quantities of game, partridges, quails, &c., and is said to be very partial to parroquets. This assertion is corroborated by the fact of my having first obtained a specimen of the rare *Alexandrine Parroquet* by the agency of a *Shaheen*, which pounced on a flock that was crossing a glade of a forest in Malabar, and carried one off, but dropped it on my firing at it. Very lately too, one belonging to me having lost a partridge at which it was flown, took a long though unsuccessful flight after some parroquets it spied high up in the air. One I shot in Travancore just after sunset was busily devouring a goatsucker it had captured.

"The *Shaheen* breeds on steep and inaccessible cliffs. It lays its eggs in March and April, and the young fly in May and June, when they are caught by the falconers.

"The *Royal Shaheen* of the East (as its Indian name implies) is very highly prized by the natives for use in hawking, and it is esteemed the first of all the Falcons, or black-eyed birds of prey as they are called in native works on Falconry, the large and powerful *Bhyree* (the Peregrine) even being considered only second to it. Although hawking is now comparatively at a low ebb in India, yet many individuals of this species are annually captured in various parts of the Peninsula, and taken for sale to Hydrabad, and other places where the noble sport of falconry is yet carried on, and they sell for a considerable price. The *Shaheen* and other Falcons are usually caught by what is called the *Eerwan*. This is a thin strip of cane of a length

about equal to the expanse of wings of the bird sought for. The ends of the stick are smeared with bird-lime for several inches, and a living bird is tied to the centre of it. On observing the hawk, the bird, which has its eyes sewn up to make it soar, is let loose, and the falcon pounces on and attempts to carry it off, when the ends of its wings strike the limed twig, and it falls to the ground. The birds usually selected for this purpose are doves, either *Turtur risorius* or *T. humilis*.

"The *Shaheen* is always trained for what in the language of Falconry is called a *standing gait*, that is, not slipped from the hand at a quarry, but made to hover and circle high in the air over the falconer and party, until the game is started, and then to make its swoop, which it does with amazing speed. It is, indeed, a beautiful sight to see this fine bird stoop on a partridge or florikin, which has been flushed at some considerable distance from it, as it often makes a wide circuit round the party. As soon as the falcon observes the game which has been flushed, it makes two or three onward plunges in its direction, and then darts down obliquely with half-closed wings on the devoted quarry with more than the velocity of an arrow. This is of course a very sure and deadly way of hunting, and, though infinitely more exciting than the flight of short-winged hawks, is certainly not to be compared in interest to the flight of a *Bhyree* (Peregrine) from the hand after the heron, or the douk (*Tantalus leucocephalus*). The *Shaheen* is usually trained to stoop at partridges and florikin (*Otis aurita*), and occasionally at the stone plover (*Œdicnemus crepitans*) and the jungle fowl. It will not hover in the air so long as the *Lugger*, another large falcon used by the natives, which, being of a more patient and docile disposition, will stay up above an hour.

"In the works on Falconry before alluded to, the name *Shaheen* is said to be that by which it is known in Persia, as well as among the Mussulmen of India. *Kohee* is the name given to it by the Hindoos of the North of India, whence, in all probability, comes the name of the male bird in general use, viz. *Koëla* or *Kohela*,—though it is said to be called *Shaheen Bucha* in Persia; it is also said to bear the name of *Laheen* in Toorkistan, and *Kubursh* in Arabic. Among the localities given for it in the native works on Falconry are Koordistan, Khorasan, Moultan, and Cabool. Several varieties are enumerated, viz. the red, the white, the blue, and the black; but these are merely shades of difference in the colours and in the more or less distinctness of the markings. These variations, I may remark, are very considerable in this Falcon, as well as in the Peregrines found in India, and are probably in some measure owing to the long domestication, if I may so speak, of these birds, as it is well-known that birds moulting in confinement vary somewhat in the shades of their plumage from those subject to the more vigorous actions of a wild state of life."

The male has the head, line beneath the eye, the moustache, back, wings and tail dark slaty brown; the feathers at the back of the neck stained with rufous, forming a semi-collar; primaries and secondaries slightly margined at the tip with dull reddish brown, and crossed on the basal three-fourths of their inner webs with broad marks or bands of buff; rump and upper tail-coverts grey, with darker shafts; two centre tail-feathers crossed with faint bands of greyish buff, the remainder with broader and more conspicuous bands of buff, with a wash of grey on those nearest the base of the feathers; all the feathers tipped with buff; throat, breast and ear-coverts white, gradually blending with the rusty red which occupies the whole of the under surface; the feathers of the breast, abdomen and flanks with a streak of brownish black down the centre, becoming broader towards the tip, and gradually increasing in size, until on the flank feathers the marks assume a triangular or transverse form; under surface of the wing deep buff, crossed by irregular bands of blackish brown; orbits, cere, and base of the mandibles pale yellow; legs and feet deep yellow; bill dark horn-colour; claws black; irides dark hazel.

A young female in Mr. Jerdon's possession differed from the male in having the chin, throat and cheeks white, the rufous edgings of the feathers very indistinct, and the general plumage of a darker hue.

"After the first moult," says Mr. Jerdon, "the markings of the lower surface disappear, except a few on the lower part of the abdomen and legs, the plumage of the upper surface becomes of a more bluish tinge, and the edgings and barrings disappear; with further moultings the shade of the upper surface becomes still lighter, and of a slaty blue, the markings beneath vanish entirely, and the rufous tint of the breast becomes paler."

The Plate represents the two sexes of the natural size, from a spirited sketch by Mr. Wolf; the figure of the male being that of a bird not quite mature.



FALCO BABYLONICUS, *Gurney*

J. Wolf & W. Hawkins, del. et lith. Walter, Imp.

FALCO BABYLONICUS, *Gurn.*

Red-naped Falcon.

Falco babylonicus, Gurney, Sclater and Irby in Ibis, 1861, p. 218, pl. vii.—Blyth, Ibis, 1863, p. 8.—Jerd. Birds of India, vol. i. p. 32.

This fine peregrine type of Falcon has only been brought to light within the last few years; for it is in 'The Ibis' for 1861, p. 218, that Captain Irby states "Mr. Sclater has kindly supplied me with the following remarks upon this hitherto undescribed bird:—

"'Captain Irby's specimen, which was obtained in Oude, seems to be referable to a new species or distinct variety of true Falcon, most nearly allied to the *Falco barbarus*, for which Mr. Gurney proposes to use the name *F. babylonicus*, the first specimen of it having been obtained in Babylonia by the Euphrates Exploring Expedition. Besides Captain Irby's specimen, I am acquainted with the following individuals referable to *F. babylonicus*:—An example in partially immature plumage also procured by the Euphrates Exploring Expedition in Babylonia, and presented by Commander Jones to the India Museum, and two adult specimens in the Norwich Museum.'"

Since these remarks were published, I have been favoured by Colonel L'Estrange with the loan of a female; and a fine male was in my possession for some time from the collection of Major E. Delmé Radcliffe, of the 88th Connaught Rangers, both of which were obtained in the north-western portion of India; and Mr. Blyth states that, in a recent communication from Dr. Jerdon, it is asserted that the *F. babylonicus* is not uncommon in Cashmere. The occurrence of the bird in the above-mentioned localities leaves no doubt on my mind that part of Scinde, the north-western Himalayas, and Afghanistan form the true habitat of this species, and that its range never extends so far east as the Bengal Presidency, or to the southern part of the Indian peninsula. That it has many habits in common with the *F. peregrinus*, and that it also assimilates to that species in disposition, flight, and courage, there can be little doubt; but on this head I shall give some extracts from a very valuable paper published in the 'Field' for Nov. 16, 1867, by Major E. Delmé Radcliffe, a gentleman who is evidently a careful observer and fully impressed with the interest which attaches to any information respecting the fine Falcons of the part of India in which he is located (Kala Bagh, near Murree, in the Himalayas); and it has seldom fallen to my lot to quote lines more to the purpose, and which I feel confident may be strictly relied upon.

After a few preliminary remarks on the Shaheen Falcons of India, this gentleman says:—

"I believe there are at least three kinds. The two I am best acquainted with are the Common Shaheen, or Sultan Falcon (*F. peregrinator*), called by the falconers of India 'kala shaheen,' or 'kala kohee,' signifying black shaheen, or black kohee; and the Red-naped Shaheen (*F. babylonicus*), called by the Indian falconers 'sufaid shaheen' or 'kohee,' or 'lall sir shaheen' (white shaheen or kohee, or red-head shaheen). The latter has been erroneously called the Red-naped Lanner by some authors; and I am inclined to think that, in the very pale slate-colour which this Falcon always assumes on the back, in the adult plumage, it has been mistaken by some observers for the Sultan Falcon in an undescribed state of plumage: for the Sultan Falcon certainly never becomes light-coloured with age; the head is of a very dark slate-colour, almost black in some, the back darker than in most dark-coloured Peregrines, while the breast is very deep rufous at an advanced age. The Red-naped Shaheen becomes very pale slate-colour on the back, and its head red, at the first moult, and the back perhaps a shade or two paler at the next two moults; but the rufous colour of the breast, never so deep as in the Sultan Falcon, is maintained, and, if anything, becomes a shade deeper, while the markings become finer, as in the Sultan Falcon and Peregrine. I am at a loss to understand how the Red-naped Shaheen ever came to be confounded with the Lanners or Desert Falcons—birds of a far inferior type,—as it has nothing in common with these Falcons, possessing as it does all the characteristics of the Peregrine type; and a very handsome Falcon it is, though not equalling the Sultan Falcon in beauty. I do not entirely admire its red head; some individuals I have seen with the heads nearly as red as the Red-headed Indian Merlin.

"Both *F. peregrinator* and *F. babylonicus* breed in the rocks in the hills surrounding our hut encampment, chiefly towards the north and west. Many, I am told, breed in and about the Khyber pass and the mountains of Affghanistan; certain breeding pairs are well known to the native chiefs, from which they obtain the young Hawks for training every year. I have a stuffed specimen of *F. babylonicus*, which was shot close by; it is a bird of this year, which had apparently not long left the nest; and I almost daily see young Hawks of the latter species flying over the hill we are on, though it is covered with pine trees, and stooping at the Ravens (*Corvus corax*)—which are very abundant here, as wild as they are in England, and

nearly as impudent as the *C. splendens* of the lower country,—and also at the hill-Crows (*C. intermedius*). By both of these they are evidently held in great awe; and while the Falcon is soaring overhead there is a dead silence which is very remarkable (owing to the incessant noise these rascals kick up all day long), and they are all carefully stowed away in the pine trees. The Falcon often appears suddenly when they are flying about croaking and cawing and enjoying themselves, and comes up amongst them, stooping right and left, putting them all in; and then she rises and soars overhead. It is all play, I suppose; but I have seen the Ravens on several occasions within an ace of being killed, which they must have been if actually struck, from the velocity of the Falcon; and once one was picked up which I believe to have been killed by the Shaheen. I suppose she would not eat Crows; but it is very evident to any one seeing her fly, that if she stooped to strike, even in this place with all these pine trees about, she could easily strike a Crow, or even a Raven, whenever she pleased. The Crows seem quite helpless before her; and though the Ravens fly far better than the Crows, they are in mortal terror too. In these hills the Shaheen preys principally upon Green Pigeons and Chukar Partridges.

"The flight of Shaheens is very fine. I do not think they are so active in repeating a stoop as the Peregrine, or that they mount as quickly; but in a long rush slanting downwards, or straight down, I think they excel the Peregrine in speed. They would make first-class game-Hawks, but they require a great deal of room to fly. They are exceedingly docile and good-tempered, and are very easily broken to the hood. They moult faster and better in confinement than any Falcons or Hawks I am acquainted with. Shaheens are not adapted for ringing flights, which is the chief reason why they are not so highly esteemed by the falconers in the lower country as they are up here, where Hawks are trained to wait on. In their wild state, as I said before, they do not mount so quickly as Peregrines; and when brought into low condition, to make them fly at Herons &c., and for the rapid course of training practised by the falconers of Oude and Central India, who only get wild-caught Hawks to deal with, and a very short hawking-season to break and fly them in, this defect is the more observable; and it is a common thing to hear the falconers of Oude say that the Shaheen or Kohee does not stand training. The truth is, that these Falcons are useless, or nearly so, unless they are flown in very high condition. The style of their flight does not admit of their being pinched.

"Speaking of the plumage of Shaheens has reminded me that I have seen it stated that the varieties noted are probably owing in some measure to domestication, 'as it is well known that birds moulting in confinement vary somewhat in the shades of their plumage' from wild ones. (See Jerdon's 'Birds of India,' vol. i. p. 38.) This is, speaking of the varieties of the Shaheen called by the natives, as Jerdon says, white, black, blue, and red. Now their white Shaheen, or Kohee, as I before said, is the red-naped Shaheen (*F. babylonicus*); their black Shaheen is the Sultan Falcon (*F. peregrinator*); and these two species are sufficiently defined. I have met with another, more like the Peregrine than these two, which is called 'Neela,' or the blue Shaheen. The red or 'lall' Shaheen, I do not know; but I don't think there is any confusion, owing to variations in colour from domestication, with the more intelligent falconers of India."

The figures represent a male and a female, of the size of life.



FALCO SACER.

FALCO SACER.

Saker Falcon.

Accipiter falco sacer, Briss. Orn., tom. i. p. 337.
—— —— *stellaris*, Briss. ib., p. 359.
Falco sacer, Gmel. edit. Linn. Syst. Nat., tom. i. p. 273.—Schleg. Rev. Crit. des Ois. d'Eur., pp. 2, 9.—Bonap. Rev. Zool., 1850, p. 485.—Strickl. Orn. Syn., vol. i. p. 79.
—— *stellaris*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 274.
—— *lanarius*, Pall. Zoog. Ross.-Asiat., tom. i. p. 330 (excl. of syn.).—Temm. Man. d'Orn., tom. i. p. 20, tom. iii. p. 10.—Gould, Birds of Eur., vol. i. pl. 20.—Gray, Gen. of Birds, vol. i. p. 19, *Falco*, sp. 2.
—— *cyanopus*, Gesn., Thienemann, *Rhea*, tab.
Le Sacre, Buff. Hist. Nat. des Ois. édit. Sonn., tom. iii. p. 92.

I am unacquainted with any species of Falcon the synonymy of which is in such a state of confusion as that of the present bird, familiarly known to most living ornithologists as the *Saker*. I might have greatly multiplied the list of names given above; but as a degree of uncertainty as to their really pertaining to this bird would have rested upon many of them, I have thought it best to restrict their number. I may state that the Saker is considerably less courageous, and consequently of less esteem among falconers than the Peregrine, the Jerfalcon, and its immediate allies. So ably have these and all other particulars respecting the bird been treated by my friend Professor Schlegel in his admirable 'Traité de Fauconnerie,' that I must advise my readers, and all who are interested in falconry, to consult it whenever they may have an opportunity of so doing, and content myself with giving a brief sketch of its habits and range from the writings of those who have had the advantage of observing the bird in its native haunts, never having myself seen it alive except in a state of captivity. In size it considerably exceeds the *Falco jugger* of India, to which it is nearly affined, and which it also resembles in habits, disposition, and economy. In south-eastern Europe, in Asia Minor, and in the intermediate countries as far as Afghanistan, this bird will probably be found in all situations suited to its habits. It is known to breed in abundance in the low, flat, country of Bulgaria, and it is doubtless also to be found in the sandy deserts of Asia Minor and northern Persia. In the Rev. H. B. Tristram's "Notes on the Ornithology of Palestine," that gentleman says:—"This splendid Falcon only came once under my observation in the oak-forests of Bashan, where I was close to it, as it perched in a tree overhead. It seems to prefer the wide plains and deserts to the cliffs of the Jordan valley. The Sheikhs of the Beni Sakk'r (sons of the Falcon) make it a point of distinction to possess several of these birds trained for the chase of the gazelle; and the distinction between it and the Lanner is well known to all the Arabs."

"This very handsome Falcon," says Mr. E. C. Taylor, "appears to be rare in Egypt; for, with the exception of a fine female obtained near Girgeh, I never saw it alive or dead, nor did I hear of any other having been seen in Egypt. The legs and feet of the adult are yellow, and not blue as they are sometimes represented."

The following account of the nesting of this species, from the pen of W. H. Simpson, Esq., appeared in the 'Ibis' for 1860:—

"On the evening of the 29th of April last, we were strolling on a low flat island in the Danube, the edge of which is well covered with tall poplars and other trees. Opposite this belt of trees, and across the river, the Turkish shore rises pretty steeply to a level with the plateau of the Dobrudska, whilst behind, toward the mainland of Wallachia, there stretches an immense tract of low ground, partly swamp, partly forest, and partly open plain. On getting close to the river, in a place where the trees are very tall and not thickly grouped, my attention was drawn to a good-sized nest which was placed about one-third of the way up a tallish poplar. It was resting upon a large branch close to the bole of the tree, and appeared exceedingly easy of access. Whilst my friend was climbing towards it, the bird slipped off and was shot immediately. It proved to be a female *Falco sacer*. The nest was not much larger than that of a Hooded Crow, but was deep and comfortably lined, and appeared externally as like a large Crow's nest as one bundle of sticks is like another. The eggs, four in number, were slightly incubated. In size they seem to be intermediate between those of the Peregrine and Gyr Falcons, but are longer in proportion to their breadth. Two of them are light in colour, the other two much darker." One of the latter, accurately represented on Plate XII. fig. 1 of the 'Ibis' for 1860, measures 2·2 inches by 1·6 inch, and is of a rich, bright, chestnut red, minutely freckled with black, with a few hair-like marks of the same colour, and a number of small light-coloured patches.

"The male bird," continues Mr. Simpson, "was shortly afterwards observed sitting utterly motionless

on the top of a dead tree, with his head turned over his shoulder; he seemed so mournfully conscious of the catastrophe which had befallen his family that I felt utterly ashamed at having added murder to robbery in my desire to possess myself of, as I supposed, an unknown bird. If the gun had still been in my hand, I could have shot him easily, as he then seemed indifferent to his fate; but he flew away before the weapon arrived, and thus escaped being involved in the ruin of his household.

"This was the only pair of *Falco sacer* ever seen by me or by any of my friends in this part of the country; I am inclined, therefore, to believe that the species is rare even here, though the bare and treeless chalk downs of the Dobrudska are frequented by innumerable Bustards, both great and small, if that be the food they covet."

In the appendix at the end of the third volume of the 'Birds of India,' Dr. Jerdon says:—"This rare European bird, the Saker Falcon of old writers, is brought in tolerable abundance from the Hazara country and the Alpine Punjab generally, and is much used for hawking the Indian Houbara Bustard, Hares, &c."

Professor Schlegel remarks that "The name of Saker, used in Europe since the time of the Emperor Frederick II. and Marco Polo, is evidently of Arab origin; for it is by this name the Arabs designate Falcons in general; it is consequently an error to render this word into the Latin "*sacer*," which signifies, sacred. This error has led to many others, even to the extent of the bird being regarded by some as identical with the Sacred Falcon of the Egyptians.

"This species," continues the Professor, "having been often confounded with some others nearly allied to it, its geographical distribution has not been clearly defined. The late Mr. Natterer killed several in Hungary; and the Dutch falconer, Mollen, tells us that when in Austria, in the service of Prince Trautmansdorff, he received young Sakers, taken from the nest in the middle of May, from the frontiers of the same country. Pallas indicates two varieties of this species—a larger kind from the Uralian mountains, and a smaller from the deserts of Great Tartary. Both, he says, emigrate in winter. The smaller one appears to be the true Saker; he states that it constructs its nest upon the trees (or even the shrubs) which are found in the desert. The young, two or three in number, often leave the nest before they are full-grown, and follow their mother everywhere, uttering loud cries. Being easily caught, the natives take them at this period, as they are much esteemed for hunting, particularly by the Kalmucs. The bird inhabits the eastern parts of Europe and the western portions of Asia."

The Plate represents a female, from the Collection of Lord Lilford, somewhat less than the natural size, and a young bird in the distance.



FALCO LANARIUS.

J. Wolf & H.C. Richter del. et lith.

Müller, imp.

FALCO LANARIUS.

Lanner Falcon.

Accipiter lanarius, Briss. Orn., tom. i. p. 363.
Falco lanarius, Klein, Ova Av., p. 48.—Schleg. Rev. Crit. des Ois. d'Eur., pp. 2, 11.—Bonap. Rev. Zool., 1850, p. 485.—Adams in Ibis, 1864, p. 10.
—— *Feldeggii*, Schleg. Abh. aus dem Geb. der Zool. &c., tabb. 10, 11; Rev. Crit. des Ois. d'Eur., p. 12.
Le vrai Lanier, Buff. Hist. Nat. des Ois., tom. i. p. 243.
Brown Lanner, Lath. Gen. Syn., vol. i. p. 86.—Id. Gen. Hist., vol. i. p. 84.

The remarks made at the commencement of my account of *Falco sacer*, as to the amount of confusion which exists with regard to its synonymy, apply with equal force to the present bird, so well known to all living European ornithologists as *Falco lanarius*; hence, for the like reasons, the list of names said to pertain to it are sparsely given. The native country of the bird is Northern Africa, over which portion of the globe it ranges from Morocco to Egypt, and proceeds still further eastward to Palestine, Asia Minor, Persia, and, according to the late Mr. G. T. Vigne's note to me, as far as the Punjab. That a bird enjoying such vast powers of flight should not occasionally visit other countries would be contrary to probability; and we find that it not only occasionally visits Spain, but there are recorded instances of its occurrence in Greece and other European countries, and one at least of its being killed in England; indeed the Reviewer, in the 'Ibis' for 1859, of Dr. Bree's 'Birds of Europe not observed in the British Isles' remarks that "The Lanner has a good claim to be included in the British list; for Lewin's figure in his 'British Birds,' vol. i. pl. 17, seems referable only to this species, and the subject of it was taken in Lincolnshire; but we know of no other instance of its occurrence here unaccompanied by considerable doubt."

Of all the Falcons I have had opportunities of becoming acquainted with in a living state, this is at once the most beautiful and the most docile. My figure was taken with great care from a living example perched on my arm, and which appeared to be as inquisitive and as interested in the delineation of his figure as the draftsman himself. This fine bird is now (March 1868) living in the aviary of the Zoological Society of London in the Regent's Park.

A glance at my plates of *Falco sacer* and *Falco lanarius* will furnish a better idea of the differences of the two birds than any verbal description, however accurate. Like the former, the latter bird is considered by the falconers a less powerful flier than the birds of the Peregrine form; and I believe it is less courageous and sanguinary. The fact is, these two desert Falcons are of a different type, befitting them for a different mode of life from that of the Peregrines, but equally suited for some special purpose, such as preying upon the smaller quadrupeds as well as birds, which the Peregrine and its allies never do.

I shall now give some extracts from the writings of the ornithologists and travellers who have remarked on this elegant bird,—a course I do not hesitate to adopt, as the furtherance of science and the promotion of truthful knowledge is my constant aim.

"By far the most common of the large Falcons of Palestine," says the Rev. H. B. Tristram, "is the *Falco lanarius*. It is universally distributed throughout the rocky wadys on both sides of the Jordan and the Dead Sea and as far north as the foot of Hermon, is a permanent resident, and, as we were told, reoccupies the same eyrie year after year. A nest of four eggs was taken in the gorge of the Wady Kelt, near Jericho, on the 29th of February; and the Lanner was breeding in four or five places in the Wady Hamam and the Wady Leimun, near Gennesaret, in April. No region is too desolate or dreary for this noble bird. On the stupendous rock of Masada, facing the Dead Sea, a Lanner dropped a Pochard Duck on being fired at; and we also saw a pair at Jebel Usdum, the salt mountain at the south end of the lake. It seems to avoid the forests; for though very common near the mouths of the ravines east of Jordan, we never observed it in the vast forests of Gilead and Ajlun. It is in high repute among the Bedouins for the chace; and trained birds are as valuable as in North Africa. But though we frequently saw it in the possession of Arab sheikhs of high degree, we never had an opportunity of witnessing the sport, as we only met them on the march."

Mr. E. Cavendish Taylor says the "Lanner is decidedly the most abundant of the large Falcons in Egypt, where it breeds and is resident, I believe, all the year round. In the month of January 1864, I shot three specimens within a short walk of Cairo."

Mr. J. Clarke Hawkshaw informs me that when at Girgeh on the 19th of March, 1865, he "saw a Lanner eating a tame Pigeon on the sandbank by the water's edge; on my approach it flew with its prey a quarter of a mile further up the Nile, and, after being twice disturbed, retired to a mud-bank in the middle of the

river, carrying the Pigeon with it. The next day I observed a pair of Lanners about the rocks by the Nile, opposite the Girgeh; one of the pair was pursued and driven up a rocky valley by a Raven. I shot the male bird while soaring near the top of the cliffs."

Professor Schlegel remarks that

"Little is really known of the habits, manners, or distribution of the Lanner. As the Baron de Feldegg killed four specimens of this bird in Dalmatia, we may reasonably conclude that it is a native of that country. However this may be, it has rarely been seen in other parts of Europe, and would seem to be merely an accidental visitor to its temperate portions. With the exception of the three individuals described by Buffon, Lewin, and Naumann, I do not know a single specimen which has been met with in Central Europe. Dutch falconers, who annually take a great number of Falcons, unanimously declare they have never seen this bird in a wild state.

"It appears that the Lanner was formerly much sought after by falconers, as they mention it in all their works."

My figure of the Lanner is of the size of life.



FALCO JUGGER, *Gray.*

Jugger Falcon.

Jugger Falcon, Lath. Gen. Hist., vol. i. p. 192.
Falco Jugger, Gray, Ill. Ind. Zool., vol. ii. pl. 26.—List of Birds in Brit. Mus. Coll., Part I. 2nd Edit. p. 52.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 13.—Cat. of Spec. and Draw. of Mamm. and Birds presented by B. H. Hodgson, Esq. to Brit. Mus., p. 43.—Gray and Mitch. Gen. of Birds, vol. i. p. 19, *Falco*, sp. 8.
—— *lugger*, Jerd. Madras Journ. Lit. and Sci. 1839, vol. x. p. 80.
—— *thermophilus*, Hodgs., Gray, Zool. Misc. 1844, p. 81.
—— (*Gennaia*) *Jugger*, Kaup in Oken's Isis, 1847, p. 71.

This species, which was first described by Latham, under its trivial name of Jugger Falcon, appears to be very generally dispersed over the whole of the peninsula of India, for we have many proofs that it inhabits the entire country from its most southern parts to the Himalayan Range; Mr. Blyth states that it is common along the banks of the Ganges above the tideway, but is not so numerous in the lower portion of Bengal; and we learn from Mr. Jerdon's "Catalogue of the Birds of the Indian Peninsula" that it is the commonest of the large Falcons of India, and that it breeds in the neighbourhood of Madras, on trees, during the hot weather: he adds, that it is one of the species trained for hawking, and is frequently flown at crows, in the pursuit of which much sport is said to be afforded; but it is a bird of heavier and slower flight than any of the other Falcons of India. It is usually flown at crows from the hand, but it is also taught to stoop at partridges, florikins, &c.

I am indebted to Andrew Murray, Esq. of Aberdeen, for the loan of a very fine collection of Indian birds formed by his brother, Dr. John Murray, Civil Surgeon at Agra; among which are the fine examples of this Falcon from which my figures were taken: as will be seen by the accompanying Plate, they differ considerably in size and colour, one being much larger and browner than the other, which is doubtless indicative of a difference of sex. Mr. Jerdon informs us that the young birds are entirely brown on their under surface, and that they lose the brown of the breast at the first, and that of the belly at the two succeeding moultings.

It will be observed that the terms *Jugger* and *Lugger* have both been employed as specific appellations for this bird; that of *Jugger* must however be the one retained, inasmuch as it has the priority and is the name applied to the male by the Hindoos, that of *Lugger* being assigned by them to the female.

The adult male has the forehead, stripe over the eye, cheeks, chin, throat, chest, and edge of the shoulder white; crown of the head and nape rufous, with a narrow stripe of black down the centre of each feather; round the eye numerous fine lines of black, which increase in number beneath the eye, and are continued downwards in front of the cheeks like a delicate moustache; back brownish black, which colour is continued on the sides of the chest in a semicrescentic form, all the feathers with a slight edging of rufous; wings slaty brown, with paler edges; primaries barred with white on their inner webs; under wing-coverts brown, spotted with white on their margins; under surface white, with a line of brown becoming spatulate towards the tip, down the centre of each feather; on either flank a patch of brown feathers, some of which are largely spotted with white; lower part of the back and tail greyish brown, the latter crossed by numerous bars, and tipped with white; irides brown; cere, base of the bill, tarsi and toes yellow; remainder of bill and claws slaty horn-colour.

The female has the head dull rufous, largely striated with brown; all the upper surface, wings and tail deep brown, with pale margins; primaries barred with white on their inner webs; tail-feathers toothed with dull white on their inner webs; moustaches more conspicuous than in the male; cheeks and throat striated with brown; under surface brown, mottled with white; under tail-coverts white; cere and legs slate-grey.

The figures represent the two sexes of the natural size.



ERYTHROPUS AMURENSIS.

Mintz & W. Hart, Ltd. ad. lith.

Walter Imp.

ERYTHROPUS AMURENSIS.

White-winged Red-footed Kestrel.

Falco vespertinus, Schrenck, Reis. Amurl. Vög. p. 230 (1860, nec Linn.).
Erythropus vespertinus, Swinhoe, Ibis, 1861, pp. 253, 327 (nec Linn.).—Id. P. Z. S. 1862, p. 315.—Jerdon, B. of Ind. i. p. 40 (1862).—Swinhoe, P. Z. S. 1863, p. 260.—Kirk, Ibis, 1864, p. 316.—Hume, Rough Notes, i. p. 106 (1869).—Jerdon, Ibis, 1871, p. 243.
Falco vespertinus, var. *amurensis*, Radde, Sibir. Reise, ii. p. 102, Taf. 1. figs. 1–3 (1863).
Hypotriorchis concolor, Gurney, Ibis, 1866, p. 127.
Falco amurensis, Homeyer, J. f. O. 1868, p. 251.—David & Oustalet, Ois. de la Chine, p. 34 (1877).
Erythropus amurensis, Gurney, Ibis, 1868, p. 41, pl. 2.—Swinhoe, P. Z. S. 1870, pp. 436, 448, 1871, p. 340.—Id. Ibis, 1873, p. 96.—Gurney in Anderss. B. Dam. L. p. 17 (1872).
Tinnunculus amurensis, Gray, Hand-l. B. i. p. 23 (1869).
Falco raddei, Finsch & Hartl. Vög. Ost-Afr. p. 74 (1870).
Cerchneis amurensis, Sharpe, Brit.-Mus. Cat. B. i. p. 445 (1874).—Id. ed. Layard, p. 66 (1874).
Erythropus raddei, Dybowski, J. f. O. 1874, p. 334.—Tacz. Bull. Soc. Zool. France, 1876, p. 126.

The present species is closely allied to the Red-legged Hobby or Red-footed Falcon of Eastern and Southern Europe (*Erythropus vespertinus*), and represents it in Western Siberia and China. Dr. von Schrenck duly noticed some differences between the bird which he procured in Amoor Land and those of Europe, but did not separate them specifically; while Mr. Radde, who obtained specimens from Amoor Land and on the Ussuri, only deemed it worth while to recognize the bird from these localities as a mere race. In my own opinion the eastern bird is quite distinct from the European Red-footed Falcon (which is also an inhabitant of Western Siberia, but gradually disappearing on the eastward side of Lake Baikal), and differs not only in the white under wing-coverts, but also in the very different plumage of the female bird, which is not unlike a young Hobby in appearance.

In addition to the localities mentioned above, Dr. Dybowski has sent specimens from the Akscha, in Daouria, and also from old Tsuruchaitui, on the Argun river. In China, according to Père David, it is not found in the south, but arrives in April in the plains of Northern China and Mongolia, flying in bands which consist generally of the males and females in separate flocks. It is a very familiar bird, according to the same observer, and takes up its residence in the large trees which are often in the neighbourhood of dwelling-houses, or even in the midst of villages, often selecting for their homes the deserted nests of Magpies or Crows. This Falcon is said by Père David to be a bird of a pleasing and amiable temperament, and very gentle and sociable in its ways, on which account it is not interfered with by the Chinese, all the more because its food consists solely of insects and small reptiles (*Phrynocephalus caudivolvulus* and *Lacerta argus*). It particularly affects the open country, and never establishes itself in the mountains or among rocks; and it may be seen near all the villages in the Pekin plain, sailing from early morning till night-time in the air, when it sails about quietly or cleaves the air with a graceful motion. In autumn these birds unite once more in large troops and go off to the south-west, the young birds being the last to quit the country.

It occurs in India, where, Dr. Jerdon says, it is not common, but is generally spread throughout the country; and he has killed it himself in various places, but only in the rainy season. It is also numerous in South-eastern Africa during the northern winter.

Mr. Swinhoe gives an interesting account of this Falcon near Chefoo, where it breeds in the nests of Magpies; but he did not succeed in obtaining the eggs. He states also that the food consists not only of insects, but also of small birds, and for the capture of the latter they are trained for hawking.

The following description of the adult male bird is given by Mr. Sharpe in his 'Catalogue:'—"Above leaden black, a little paler on the lower back and secondaries, the greater wing-coverts and primaries clearly washed externally with silvery grey; tail greyish black above, paler beneath; under surface of body pale grey; lower abdomen, thighs, vent, and under tail-coverts bright chestnut; under wing-coverts pure white; cere and orbits orange; feet and tarsi dark orange, claws whitish; bill dark orange, black at tip; iris hazel. Total length 9·5 inches, culmen 0·75, wing 9·0, tail 5·3, tarsus 1·15.

The female is very Hobby-like in plumage, and has the tail grey, banded with black, and the upper surface broadly barred with black; the under surface creamy white, the breast broadly streaked and the flanks barred with black; the abdomen, thighs, and under tail-coverts uniform pale rufous.

Young birds are like the old female, but have the feathers edged with rufous.

The figures in the Plate are drawn from specimens lent me by Mr. Henry Seebohm from the Swinhoe collection; they represent an adult male and female, of about the size of life.



SPILORNIS RUFIPECTUS, *Gould*

J. Wolf and H.C. Richter del. et lith.

Hullmandel & Walton, Imp.

SPILORNIS RUFIPECTUS, *Gould.*

Rufous-breasted Spilornis.

Spilornis rufipectus, Gould in Proc. of Zool. Soc., part. xxv. p. 222.

We are now acquainted with at least three or four species of this well-defined genus of Hawks, whose habits and mode of life appear to be very peculiar; it would seem, also, that their structure is especially adapted for living upon snakes and lizards; at least, this is the kind of food upon which the common Indian species (the *Spilornis Cheela*) is said to exist. Another bird of this form (the *Spilornis holospilus*) inhabits Manilla; and the well-known *Spilornis Bacha* frequents the islands of Java and Sumatra: the present bird, which inhabits countries still further south, and which is the smallest member of the genus, was sent by Mr. Wallace from Celebes, and was obtained by him in the vicinity of Macassar.

Before figuring this bird as new, I consulted Mr. J. H. Gurney as to the propriety of so doing, and of assigning to it a specific appellation, when he unhesitatingly affirmed that it differed from every other known species, and added that I should be quite right in so doing. I mention this because my friend M. Jules Verreaux of Paris, in a conversation I had with him on the subject, appeared to be of a different opinion, and stated that he had seen specimens intermediate in plumage between this bird and the *S. Cheela*, which circumstance induced him to believe that they were of one species. I believe, however, that, great ornithologist as the latter gentleman undoubtedly is, in this instance he is in error, and that the birds are really distinct.

It is probable that the sexes, when fully adult, offer little or no difference in colour; on the other hand, as will be seen on reference to the accompanying Plate, a considerable variation exists in the young state. My thanks are due to Mr. Gurney for his kindness and liberality in permitting me to enrich this work with a copy of the beautiful drawing of this species prepared for him by Mr. Wolf.

Crown of the head and occipital plumes deep black, the occipital plumes margined at the tip with rufous; feathers at the nape black, conspicuously margined with rufous; feathers of the upper surface and the wings dark chocolate-brown, with paler edges; chin, and sides of the neck, greyish-black; chest deep cinnamon-brown; primaries and secondaries blotched with white at intervals on their internal web; under wing-coverts, abdomen, vent, thighs, and under tail-coverts cinnamon-brown, crossed by bands composed of two large spots of white, bounded above and below with a narrow line of black; tail dark brown, crossed near the base by a narrow and not very distinct band of greyish, and near the apex by broad bands of a lighter hue passing into whitish on the edges of the internal webs, and narrowly edged at the tip with pale reddish-brown and white; bill blackish brown; the cere, naked orbits, legs, and feet yellow.

The figure is about, or perhaps rather less than, the natural size.



SPIZAËTUS ALBONIGER, *Blyth*

J. Wolf and J. C. Richter, del. et lith.

Walter A. Cahn, Imp.

SPIZAËTUS ALBONIGER, *Blyth.*

Nisaëtus alboniger, Blyth, Journ. Asiat. Soc. Beng., vol. xiv. p. 173.
Spizaëtus alboniger, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 26.
—— —— *borneonensis*, Gray, List of Birds in Coll. Brit. Mus., 2nd edit. part 1, *Accipitres*, p. 16.

There is no one section of the Falconidæ respecting the habits and economy of which we know so little as of the Crested Eagles forming the genus *Spizaëtus*; the synonymy, too, of the various species has not been so clearly defined as might be desired; I have not hesitated, therefore, to seek the aid of a gentleman (J. H. Gurney, Esq.) who has devoted much of his attention for many years to the birds of the Raptorial order; and this aid has been most courteously accorded to me, in the form of a monograph of the Indian species, which I consider I may most appropriately publish as an accompaniment to my illustration of the *Spizaëtus alboniger*. I must, at the same time, thank Mr. Gurney for permission to copy Mr. Wolf's spirited sketch, which represents the adult and young of this species as nearly three-fourths the natural size as may be.

The following are Mr. Gurney's observations:—

"*Spizaëtus alboniger*, Blyth; *S. borneonensis*, Gray.—This very distinct species, the smallest of the Asiatic *Spizaëti* with which we are at present acquainted, was first described by Mr. Blyth (A. D. 1845) in the fourteenth volume of the 'Journal of the Asiatic Society of Bengal,' p. 173, in the following terms:—'A smaller species than either of those from India, measuring about 21½ inches in length; wing 13 inches, and tail 9½ inches; tarsus 3 inches; occipital crest 3¼ inches. Adult:—black above, with a purple gloss; the large alars embrowned, and distinctly banded with black; tail black, with a broad, light greyish brown bar occupying about its third quarter from the base; the longer upper tail-coverts have each two cross-bands of the same; lower parts pure white, with a black mesial line on throat; large intense black drops on the breast. The belly, vent, lower tail-coverts, tibial plumes, and short tarsal feathers are throughout closely barred black and white; beak black, and toes wax-yellow. A younger specimen has the drops fewer and smaller on the breast, an admixture of rufous about the head, several unmoulted brown feathers among the wing-coverts, and one unmoulted tail-feather which has three narrowish dark bars, with two or more at the base, closer and less defined: a remarkably handsome species from Malacca, the Tenasserim provinces, and Borneo.

"The two specimens now figured are in the collection of the Norwich Museum; the adult was obtained from Singapore through the intervention of H. F. Barclay, Esq.; the immature bird was presented by the late Captain Glasspoole, who obtained it in the course of one of his voyages to the East, but the exact locality from whence it was procured is not recorded.

"The following species are also found on the continent of Asia and in the adjacent islands:—

"Spizaëtus lanceolatus, Temminck & Schlegel, Fauna Japonica, p. 7.

"———— *fasciolatus*, Schlegel, Muséum des Pays Bas, p. 9.

Professor Schlegel, though citing the above synonym for this species, appears to doubt its being specifically distinct; it is, however, a very well-defined species, differing from *S. alboniger* in its larger size, in the absence of a crest, and in the strong rufous colouring of the upper portion of the breast in the adult bird. It inhabits the Celebes, and, according to the authors of the 'Fauna Japonica,' is also found in Borneo. This species, of which the British and Norwich Museums contain fine examples, brought from the Celebes by Mr. Wallace, has not yet been figured.

"Spizaëtus Kieneri, De Sparre, Magasin de Zoologie, 1835, pl. 35 (adult).

"A specimen in immature plumage, said to have been killed on the coast of Scotland, near Aberdeen, in the year 1828, is figured in Jardine and Selby's 'Illustrations of Ornithology,' pl. 66. This species has been observed in Northern and in Central India, and it also occurs in the islands of Java and Borneo; but both there and in India it appears to be a bird of considerable rarity.

"Spizaëtus Philippensis.—This specific name I would propose for a species of *Spizaëtus* inhabiting the Philippine Islands, which appears to me to be undoubtedly distinct, though not admitted as such by Professor Schlegel, who is disposed to consider it as referable to *S. Kieneri* (*vide* Muséum des Pays Bas, p. 12), an opinion in which I am unable to agree. As this *Spizaëtus* is at present unfigured, I add the description of a specimen in the Norwich Museum, which I suppose to be an adult female:—

"Total length 25 inches; wing, from carpal joint, 14¾; tail 11½; crest 2½; tarsus 3½; middle toe and claw 3.

"The general colour of the upper surface in this species is a dark umber-brown; but the base of the feathers of the crest is white, and the margins of the other occipital feathers are of a light yellowish brown. Some of the scapulars and upper alar feathers (especially the latter) are slightly tipped with the same; the tail, which is of a somewhat lighter brown than the back, is tipped with a very narrow edging of white, and is

also crossed by seven blackish-brown bars, the upper one being, however, somewhat indistinct, and the two lower being separated by an interval which is twice the breadth of the spaces between the other bars. The throat has a broad blackish band running down its centre, with two similar and nearly parallel bands proceeding from the corners of the mouth, the three bands all merging in a cluster of dark brown lanceolate marks upon the upper portion of the breast, the intervals between these markings and also the whole plumage of the lower sternal and abdominal regions being tinged with a yellowish rufous; the under tail-coverts are barred with brown and white, the former bars being much broader than the latter; and the thighs and tarsi are marked throughout their length with narrow equidistant transverse bars of the same colours.

"A second and apparently less adult specimen in the Norwich Museum resembles the one above described, except in the crest being less developed and in the colours generally being somewhat lighter, particularly on the head, and the markings, especially on the lower part of the tarsi, being paler and less distinct.

"Spizaëtus Nipalensis, Hodgson.—The following description of this fine species, the largest of the Asiatic *Spizaëti*, is extracted from Mr. T. C. Jerdon's excellent work on the Birds of India, now in course of publication:—'Plumage of the upper parts deep brown, very dark on the interscapulars, and verging on black on the crown and occipital crest, which is slightly tipped with white, and is 4 inches long; nuchal feathers edged tawny brown; chin blackish, continued as a median line to the breast, which is fulvous brown and with dark streaks; or in some, the chin, throat, and breast fulvous, with large blackish-brown ovate spots; and a dark moustacheal band and two similar lateral streaks, at first very broad, proceed from the corners of the gape; belly, flanks, lower tail-coverts, and thigh-coverts more or less distinctly banded with brown and white; tarsal feathers banded whitish; wings dark brown, banded with blackish; under wing-coverts banded with white; tail light greyish brown, with five dark bands, as broad or broader than the interspaces; upper tail-coverts also banded brown and white. The feathers of the tarsus cover the bases of the toes.

"'Length of a male 29 inches; wing 18; tail 13; tarsus 4; mid-toe $3\frac{1}{4}$.

"'Another, probably a female, was 32 inches; wing 19; tail 14; tarsi $4\frac{1}{2}$; mid-toe and claw $3\frac{3}{4}$.

"'This splendid Hawk-Eagle has been found on the Himalayas, in the Khasia Hills, and in Ceylon. I got one specimen only at Darjeeling, where, however, it is well known, though rare, and is said to kill pheasants, partridges, and other birds.'

"To the above account I would add that the transverse abdominal bars which occur in this species are frequently divided by the brown centre of the feather so as to present an appearance of white ovate spots, which I have not observed in the other Asiatic *Spizaëti*. I would also remark that the '*Spizaëtus orientalis*' of Japan and Formosa, of which a Japanese example is figured in the 'Fauna Japonica,' Aves, pl. 3, is certainly closely allied to, and probably not specifically distinct from, this species.

"Spizaëtus cirrhatus, Gmel.—This species (the common Crested Eagle of India and Ceylon) differs from *S. Nipalensis* in its somewhat smaller and much more variable size, in the paler character of the transverse markings on the abdomen and thighs, in the entire absence of the white abdominal ovate spots, and especially in the less powerful development of its talons generally, and of the inner and hinder claws in particular, these being very decidedly smaller and feebler in this species than in *S. Nipalensis*.

"*S. cirrhatus* is figured in the Planches Coloriées, pl. 282, under the name of '*Falco cristatellus*.'

"Spizaëtus caligatus, Raffles.—This species is very nearly allied to the preceding (with which many ornithologists consider it to be identical), but appears to differ from it in the following particulars, viz., first, by the non-development of the crest, which is a marked feature in most specimens of *S. cirrhatus*, but which is entirely absent in the great majority of specimens of *S. caligatus*, and when it does appear is much less elongated than it usually is in *S. cirrhatus*; second, by the bill being somewhat deeper and more powerful, and the tarsi somewhat shorter, in *S. caligatus* than in *S. cirrhatus*, the comparison being, of course, made between individuals of equal general size; third, by the wider geographical range of *S. caligatus*, which is found not only in India and Ceylon, but also in Burmah, the Malay Peninsula, Sumatra, Borneo, and Java; fourth, by the tendency to melanism, which is of constant occurrence in *S. caligatus*, while in *S. cirrhatus* such a variety is very rare. This black variety of *S. caligatus* has been observed in Java to be permanent and hereditary, and to be commoner in that island than the paler race. Some naturalists have, indeed, considered it as specifically distinct; and such is the opinion expressed by Dr. Bernstein (a resident in Java) in a very interesting paper published in Cabanis's Journal of Ornithology, vol. viii. p. 417. The adult of the paler race is figured by Temminck in the Planches Coloriées, pl. 127, under the title of '*Falco niveus*;' and the same work contains a figure, in pl. 134, of the dark variety, under the name of '*Falco limnaëtus*:' the latter is also figured in Horsfield's Zoological Researches in Java, Aves, pl. 3.

"In conclusion, I may recapitulate the species of Asiatic *Spizaëti* which I have above enumerated, and which, in my opinion, may be considered as distinct:—

"*Spizaëtus alboniger*, Blyth; *S. lanceolatus*, Temminck; *S. Kieneri*, De Sparre; *S. Philippensis*, nobis; *S. Nipalensis*, Hodgson; *S. cirrhatus*, Gmelin; *S. caligatus*, Raffles."



MILVUS GOVINDA, *Sykes.*

MILVUS GOVINDA, *Sykes.*

Govinda Kite.

Milvus Govinda, Sykes in Proc. of Comm. of Sci. and Corr. of Zool. Soc., Part II. p. 81.—Gray and Mitch. Gen. of Birds, vol. iii. App. p. 2, App. to p. 24 of vol. i.—Bonap. Consp. Gen. Av., p. 21, *Milvus*, sp. 2.—List of Birds in Coll. Brit. Mus., Part I. 2nd edit., p. 43.
—— *Cheele*, Jerdon in Madras Journ. of Lit. and Sci., vol. x. p. 71.
—— *melanotis*, Temm. et Schlegel, Faun. Japon. Aves, p. 14. tab. v.?
—— *indicus* vel *Cheela*, Hodgs. in Gray's Zool. Misc. 1844, p. 81.
—— *Cheela*, Gray and Mitch. Gen. of Birds, vol. i. p. 24, *Milvus*, sp. 3.
—— *melanotis*, Ib., *Milvus*, sp. 6.
—— (*Hydroictinia*) *govinda*, Kaup, Isis 1847, p. 119.
Haliætus lineatus, Gray, Ill. Ind. Zool., pl. 18.
Falco Cheela, Lath. Ind. Orn., i. p. 14?—Daud. Orn., ii. p. 41?—Shaw, Gen. Zool., vol. vii. p. 69?
Cheela Falcon, Lath. Gen. Syn. Supp., p. 33?
Cheela Eagle, Lath. Gen. Hist., vol. i. p. 145?
Cheel, of the Hindoos.
Common or *Pariah Kite*, of the European residents in India.

This fine species of true Kite appears to be very generally dispersed over the Peninsula of India from Madras to the base of the Himalayas, performing the same offices there that the *Milvus affinis* does in Australia and the *Milvus ater* in Europe. Like its Australian prototype, it is a bold and fearless bird, the presence of man, in his wanderings through the country, at all times attracting its presence.

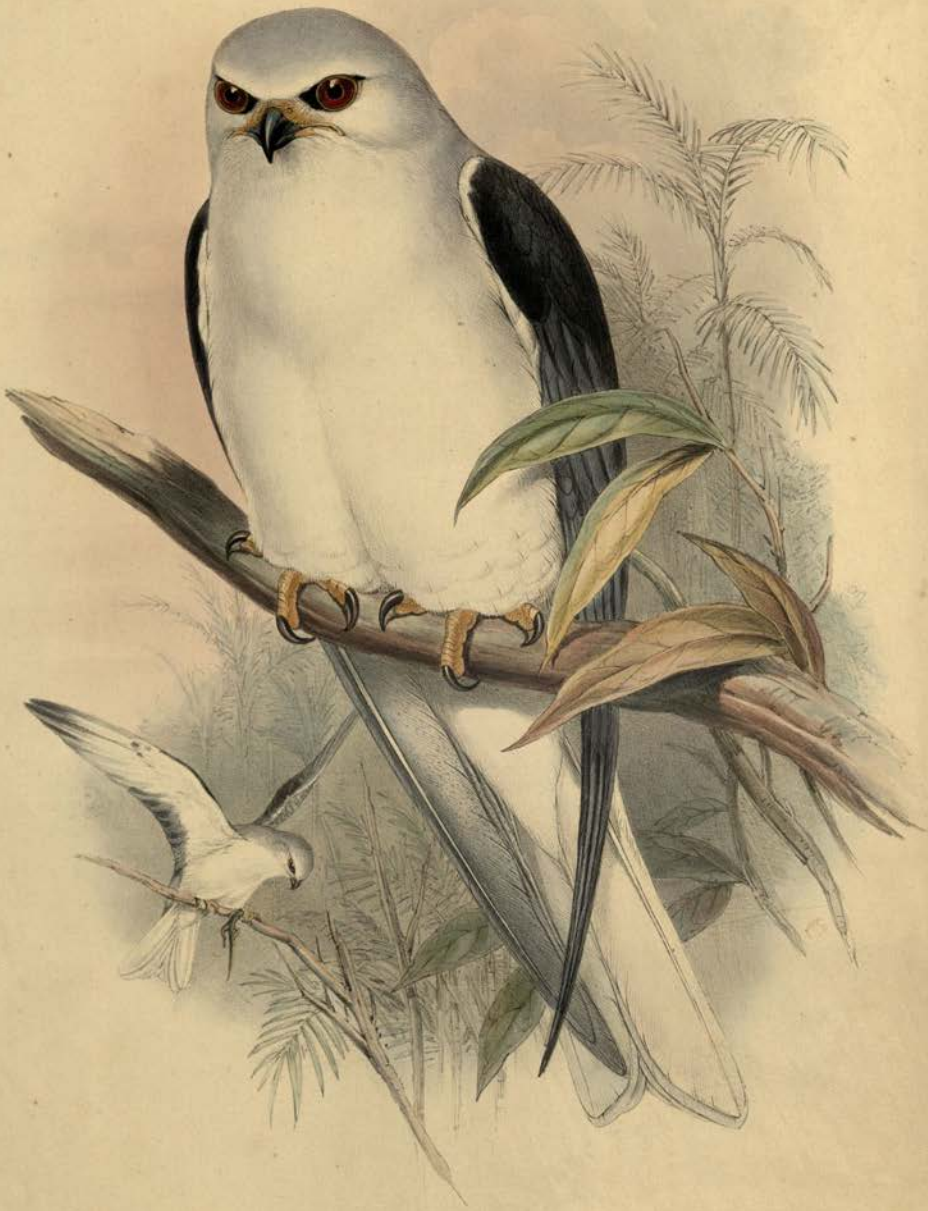
I cannot for a moment consider this bird in any other light than as specifically different from the *M. ater* of Europe and the *M. affinis* of Australia; in my opinion they form three very distinct species, of which the *M. Govinda* is by far the largest and finest. The accompanying drawing was made from specimens collected by Captain Boys, and which now form part of the fine collection at Philadelphia.

"This very useful bird," says Mr. Jerdon, "is very numerous, more especially in cantonments, camps and villages, and is continually upon the look-out for refuse of every description; Colonel Sykes says, 'Constantly soaring in the air in circles, watching an opportunity to dart upon a chicken, upon refuse animal matter thrown from the cook-room, and occasionally even having the hardihood to stoop at a dish of meat carrying from the cook-room to the house.' Away from the cantonments it preys chiefly on reptiles, and is also remarkably fond of fish.

Considerable difference occurs in the colouring of the young and old birds, the youthful plumage being characterized by a much greater amount of white on the head and neck, as well as on the upper surface generally, the white occupying the tips of the feathers of the upper surface and the margins of those of the under surface, which therefore appears as conspicuously streaked with buffy white, as in the adult it is with dark brown.

The entire head clothed with feathers, which are of a dark brown margined with white, giving it a streaked appearance; all the upper surface very dark brown, becoming of a paler hue on the tips of the wing-coverts; tail brown, crossed by numerous irregular bars of a deeper colour; breast and abdomen of a paler brown than the upper surface, with a broad streak of very dark brown, bounded on each side by a narrow line of brownish white down the centre of each feather, giving the whole a conspicuously streaked appearance; vent, thighs and under tail-coverts rusty red, with a narrow line of dark brown down the shaft; irides dark brown; cere and base of lower mandible yellow, upper mandible and point of the lower black; legs and feet olive-yellow; claws black.

The figures represent a young and an old bird about two-thirds of the natural size.



ELANUS HYPOLEUCUS, *Gould.*

J.Gould and H.C.Richter, del. et lith.

Hullmandel & Walton, Imp.

ELANUS HYPOLEUCUS, *Gould.*

Celebean Elanus.

Elanus hypoleucus, Gould in Proc. of Zool. Soc., part xxvii. p. 127.

There is not a more distinct and better-defined group of Hawks than those forming the genus *Elanus*, the members of which are widely spread over both the Old and the New World. In America the *Elanus leucurus* has a wide range, from Mexico to Brazil; Africa, India, and the Indian Islands are inhabited by three others; one, the *E. melanopterus*, ranges over Southern Europe, the whole of Africa, and India; Australia, however, appears to be the head-quarters of the genus, two species at least, the *E. axillaris* and *E. scriptus*, inhabiting that country. The present bird differs from all the other members of the genus; it is most nearly allied to *E. axillaris*, but exceeds that bird in size, and is destitute of the black spot on the under surface of the wing. It is true, some small tippings of black are seen, but they occur on a different part to the spot in *E. axillaris*: the character by which it may at all times be distinguished is the silvery-white hue of the under surface of the primaries throughout their whole length.

Mr. Wallace sent specimens of both old and young birds from Celebes; I have seen another example in the collection of T. C. Eyton, Esq., which was procured in the Philippines; and J. H. Gurney, Esq., informs me that he has seen specimens from Java; this latter island, then, appears to be the portion of the Old World where two, if not all the species of the genus inosculate; the *E. axillaris* is certainly found there, and, if I mistake not, the *E. melanopterus* also. There seems to be no difference in the colouring of the sexes; the young, on the other hand, as will be seen on reference to the Plate, are distinguished by having the head striated with reddish brown, and by having a crescent of white at the tips of the wing-feathers.

The adult has the face, space over the eye, ear-coverts, and all the under surface of the body, under surface of the wing, under tail-coverts, under surface of the tail-feathers, and the thighs pure white; basal half of the under side of the first six primaries white, slightly speckled with grey, passing into blackish grey; on their apical halves this grey hue also pervades the under surface of the remaining primaries; crown of the head, back of the neck, back and scapularies deep grey; on the shoulders a large patch of black; secondaries and basal half of the primaries deep grey, passing into blackish grey at their tips; two centre tail-feathers grey above, the next on each side grey on their outer margins, the rest white; cere and legs orange-yellow; bill and nails black.

The young at apparently about nine months old differ from the adult in having the crown lineated with reddish brown, and a crescent of white at the tip of the primaries, secondaries, scapularies, and wing-coverts.

The figure in the Plate is of the size of life.



SCOPS PENNATA.

J.Gould & H.C.Richter del. et lith. Walter Imp.

SCOPS PENNATUS.

Indian Scops Owl.

Scops pennatus, Hodgs. Journ. Asiat. Soc. Beng., vol. vi. p. 69; Asiat. Res., vol. xix. p. 175.—Blyth, ibid., vol. xiv. p. 183.—Kaup, Mon. Strig. in Jard. Cont. to Orn., 1852, p. 110.
—— *Aldrovandi*, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 36.
— — *zorca*, Bonap. Consp. Gen. Av., tom. i. p. 47.
—— *sunia*, Hodgs. Asiat. Res., vol. xix. p. 175.—Jerd. Ill. Ind. Orn., pl. 41.—Gray, Hand-list of Birds, vol. i. p. 45.
— *Malayanus*, Hay.
Ephialtes spilocephalus, Blyth, Journ. Asiat. Soc. Beng., vol. xv. p. 8.
— — *scops*, Horsf. & Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. i. p. 69.
—— *pennatus*, Jerd. Birds of Ind., vol. i. p. 136.
Choghad kusial and *Sunya kusial*, in Nepaul.
Chetta guba and *Yerra chitta guba*, Telugu.

I should suppose that there is no species of Owl respecting the specific name of which there has been more confusion than the one here represented, a confusion which has been mainly occasioned by the same author at one time considering it identical with the *Scops zorca* of Europe, and at another, under a different impression, reapplying either the one or the other of the two names *pennatus* and *sunia* given to it by Mr. Hodgson; its generic appellation, also, has been equally variable, being at one time *Strix*, at another *Scops*, and at a third *Ephialtes*.

That the Indian *Scops pennatus* and the European *Scops zorca* are two distinct species, there never has been any doubt in my mind. As Mr. Jerdon justly remarks, the former, besides differing very considerably in its markings, is much smaller than the latter. The red phase of plumage, too, whether due to sex or age, is much stronger in the Indian than in the European species. I trust that a glance at the accompanying Plate will be sufficient to convince those ornithologists who have a knowledge of our bird that the opinion of their being distinct is the correct one; in confirmation of this view, I may add that I have not yet seen the *Scops zorca* from India, but I have a specimen in the grey plumage from Asia Minor, the most eastern locality in which I have known it to be found. From the time when Mr. Jerdon's plate of the Indian bird first came under my observation in his 'Illustrations of Indian Ornithology,' this species has been of great interest to me; and it doubtless has and will be held in equal estimation by other ornithologists. With its habits and economy I have had no opportunity of making myself acquainted; I must therefore take the liberty of transcribing the notes made by those who have been more fortunately situated.

"This little Owl," remarks Mr. Jerdon, "was first considered distinct from its European representative, *S. zorca*, and named *pennatus* by Hodgson. It has been considered identical by some, and is so put in Blyth's and Horsfield's Catalogues. Kaup, however, keeps it distinct from the European one; and all ornithologists agree in distinguishing *sunia*, which is only found in the same localities with the grey one, and must be considered a phase of plumage of that bird. Indian specimens, even in the grey plumage, can generally be distinguished from European ones, though it is difficult to describe in words in what the difference consists. Two European specimens of *S. zorca* in the Museum of the Asiatic Society at Calcutta differ from Indian specimens of *pennatus* in the upper plumage being more conspicuously streaked, in the bands on the quills being lighter, and in the pale ground-colour being wider and more mottled. They are also decidedly larger, the wing being above six inches in length."

After stating that "the Indian Scops is found occasionally throughout all India and Ceylon, in forests and well-wooded districts," Mr. Jerdon adds:—"The first specimen I procured was found dead outside my house at Madras, and had probably been killed by the Crows, as it was in good case and very little injured. I have obtained it both from the Eastern and Western Ghâts, but not from Central India. It is also found in the Himalayas, and extends into Burmah, Malayana, and China. It utters a low, mild hoot which is often repeated, soon after dark. All I have examined had eaten insects."

"This Owl," says Capt. Hutton, "occurs on the Himalaya in the neighbourhood of Mussoorie, at an elevation of five thousand feet, and nidificates in hollow trees, laying three pure white eggs of a rounded form, on the rotten wood, without any preparation of a nest. A nest was found on the 19th of March; the diameter of the egg $1\frac{5}{16}$ by 1 inch.

In the red phase the whole of the upper surface is of a deep cinnamon or bright chestnut hue, with a mark of black down the shaft of each feather, showing inconspicuously on the back and wings, but very

distinct on the fore part of the head ; outer web of the scapularies white, terminated near the tip with a narrow oblique bar of black ; facial disks of the same hue as the upper surface, but becoming much paler near their edge, the tips of the feathers of which are black ; wing-coverts with a spot of white bounded posteriorly with black at the tip of each ; primaries dark brown, externally banded with white bounded on each side with a line of black ; breast chestnut, each feather with a black shaft, larger and more conspicuous on the upper part of the abdomen, where the feathers are tipped with white ; on the lower part they become still lighter and are crossed by narrow lines of black, and are moreover washed with rufous ; tail rufous, crossed by several narrow double bars of black ; irides pale golden yellow ; bill dusky greenish ; feet ashy grey.

In the grey state the markings are similar but, of course, much less contrasted.

Mr. Jerdon states that the young birds are of a much duller red and more distinctly black-shafted, that they have much white on the under surface, a good deal of white in the disks, the scapularies white externally, with black tips and bars on the quills, and the tail of a more distinct brown and mottled.

The Plate represents two birds in the red, and one in the grey plumage, of the natural size.



PHODILUS BADIUS.

J.Gould. & H.C.Richter, del. et lith.

Walter Imp.

PHODILUS BADIUS.

Bay Owl.

Strix badia, Horsf. Trans. Linn. Soc., vol. xiii. p. 139.—Id. Zool. Res. in Java, pl. 37.—Lath. Gen. Hist., vol. i. p. 353.—Temm. Pl. Col., 318.—Less. Man. d'Orn., tom. i. p. 114.—Vig. App. Life of Raff., p. 651.

Athene badia, Hodgs. in Gray's Zool. Misc., 1844, p. 82.

Phodilus badius, I. Geoff. Ann. Sci. Nat., tom. xxi. p. 201.—Blyth, Journ. Asiat. Beng., vol. xix. n. s., p. 513.—Gray & Mitch. Gen. of Birds, vol. i. p. 42, pl. 15. fig. 1.—Bonap. Consp. Gen. Av., tom. i. p. 55.—Dillw. Nat. Hist. Lab., p. 8.—Kaup, Mon. Strig. in Jard. Cont. Orn., 1852, p. 118.—Strickl. Orn. Syn., vol, i. p. 183.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calc., p. 41.—Horsf. & Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 80.—Jerd. Birds of India, vol. i. p. 119.—Blyth, Ibis, 1866, p. 252.—G. R. Gray, Hand-list of Birds, vol, i. p. 53.

——— *nepalensis*, G. R. Gray, Hand-list of Birds, vol. i. p. 53?

Wowo-wiwi or *Kalong-wiwi* of the Japanese (Horsfield).

I am indebted to Captain Stackhouse Pinwill, of Trehane, in Cornwall, for the loan of a drawing taken from life of the face, eyes, and disks of this highly curious Owl, which rather inhabits the confines than the peninsula of India, but which, nevertheless, appears to enjoy a wide extent of range, since Mr. Blyth enumerates the following countries as frequented by it—namely, Nepaul, Sikim, Assam, Arracan, and the Malayan Peninsula and Archipelago; that it also inhabits Java will be seen on reference to Dr. Horsfield's note given below. Hitherto it has been regarded as the sole representative of its genus; but I observe that Mr. G. R. Gray considers the Nepaulese bird distinct, and has named it *Phodilus Nepalensis*, in the recently published first volume of his 'Hand-list of Birds,' p. 53; for my own part, I have not seen any reason for believing it to be distinct. A mere glance at its peculiar physiognomy, its large eyes and bill, great wings, short body, and huge feet, will fully justify the separation of the form from the genus *Strix*, to which, however, it would seem to be nearly related; but Mr. Blyth remarks that, "upon examination of the external ear and other characters, I find it has no claim to belong the Screech-Owl subfamily (*Strigina*), but is distinctly one of the Hooters (*Syrniinæ*). Messrs. Mottley and Dillwyn state that 'it has only a single note, frequently repeated, and which is much like the first note of the Wood-Owl's cry.'" ('Ibis,' 1866, p. 252.)

Mr. Jerdon informs me that "this peculiarly coloured Owl has been very rarely found in India, having mostly been obtained by Mr. Hodgson in Nepaul and Sikim. It appears to be more common in Burmah and Malayana, especially in the Archipelago. It is said by the natives to be on good terms with the Tiger."

"The Wowo-wiwi," says Dr. Horsfield, "is rarely met with in Java. It never visits the villages, but resides in the closest forests, which are the usual resort of the Tiger. The natives even assert that it approaches this animal with the same familiarity with which the Jallah (*Pastor jalla*, Horsf.) approaches the buffalo, and that it has no dread to alight on the tiger's back. It is never seen in confinement; the few individuals I obtained were from the densest forests of the district of Pugar, and from the ranges of low hills south of the capital of Surakarta. Like most other species of this family, it is a nocturnal bird."

The sexes are alike in colour, and differ but little in size; the rich chestnut tint of their upper surface, relieved with spangles of black and white, renders them very pretty objects. Their plumage is soft and yielding, and their flight is probably noiseless.

Forehead light vinous buff; facial disks similar, but paler; before, above, and behind the eye a large mark of deep chestnut; edge of the facial disks white, each feather with a mark of chestnut varying in shape near the tip; all the upper surface, wings, and tail rich deep chestnut, the scapularies and some of the wing-coverts having a double spot of white and black near the tip; primaries and secondaries banded with black; the interspaces of the external web of the outer primaries white; under surface fawn-colour washed with vinous, and with a small spot of black near the tips of the feathers; irides full, lustrous, and black; bill yellowish horn-colour; bare part of the feet the same; claws black.

The figures are of the natural size.



ATHENE BRODIEI.

J.Gould & H.C.Richter lith et lith.

Walter Imp.

ATHENE BRODIEI.

Brodie's Owlet.

Noctua Brodiei, Burt. in Proc. of Zool. Soc., part iii., 1835, p. 152.

Athene Brodiei, Blyth, Journ. Asiat. Soc. Beng., vol. xi. p. 163.—Id. Cat. of Birds in Mus. Asiat. Soc. Calc., p. 40.—Gray & Mitch. Gen. of Birds, vol. i. p. 35, *Athene*, sp. 9.—Hutton, Journ. Asiat. Soc. Beng., vol. xvii. part ii. p. 5.—Horsf. & Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. i. p. 46.—Gray, Hand-list of Birds, vol. i. p. 40.

Noctua tubiger, Hodgs. Asiat. Res., vol. xix. p. 175.

Athene badia, Hodgs. in Gray's Zool. Misc., 1844, p. 82.

Tæniopygæ Brodiei, Kaup, in Jard. Cont. to Orn., 1851, p. 130; 1852, p. 104.—Bulger, Ibis, 1869, p. 155.

Glaucidium Brodiæi, Jerd. Birds of Ind., vol. i. p. 146.—Blyth, Ibis, 1866, p. 258.

At a first glance, this diminutive Owl would appear to be the European *Strix passerina* of Linnæus; but on comparison it will be found that not only is it quite distinct from that species, but it cannot be placed in the same genus. In size, and in size only, do the two birds at all assimilate; for, besides differing in their markings, the toes of *S. passerina* are thickly clothed with dense warm feathers, while those of Brodie's Owlet are nude, or at most have only a few hairs thinly dispersed over their upper portion.

Were I to say that Brodie's Owlet is the smallest of the Old-World Owls, I should, I believe, be stating an untruth; for I have now before me an Owlet from Assam which not only is more diminutive in size, but also differs considerably in the markings of its plumage—that is to say, in the absence of bars on the back and chest, those parts being of a uniform brown, the forehead alone being slightly spotted with fawn-colour; in all other respects it is very similar. I have compared this Assam bird with the smallest male examples I have seen of *A. Brodiei* from the Himalayas, and find it to be considerably more diminutive than either of them; and when compared with the females of the latter species it is not more than two-thirds of the size. Believing it to be undescribed, I shall provisionally name this little Owlet *Athene minutilla*, and await the arrival of other specimens, from Assam or elsewhere, before more fully characterizing it. As regards the true *A. Brodiei*, I find a difference occurs in the light portion of the throat and under surface, some specimens having those parts pure white; while in others they have a faint wash of sulphur-yellow.

Those who carefully examine this little Owl cannot fail to notice its lengthened and tubular nostrils, the why and the wherefore of which is at present unknown. By Dr. Kaup this bird has been constituted the type of his genus *Tæniopygæ*; but I do not see the necessity of separating it from *Athene*.

"This pretty little Owl," says Captain Hutton, "is exceedingly common in the Himalayas, in the neighbourhood of Mussoorie and Simla, and may be heard at nightfall uttering its monotonous but not unmusical whistle of two notes ofttimes repeated. It nidificates in hollow trees, without any preparation of a nest. On the 11th of May, 1848, I found three young ones and an egg just ready to hatch, in a hole of a wild cherry-tree. The egg was nearly round and pure white, but being broken I could take no measurement of it. The young ones were clothed in a soft and pure white down. The old female remained in the hole while we cut into the tree, and allowed herself to be captured."

Mr. Jerdon informs us that this species "is found throughout the Himalayas, from 3000 or 4000 feet to a considerably greater elevation. It is not rare about Darjeeling; and its low monotonous call or whistle of two notes may frequently be heard at nightfall, whence it is called 'the melancholy bird' at some of the hill stations. It lives chiefly on beetles and other insects."

Major Bulger mentions that, while in Sikkim in the summer of 1867, he had two or three specimens brought to him, he saw the bird himself in the forests near the station, and a hollow ringing sound, said by the natives to be its call, was very common in the woods. ('Ibis,' 1869, p. 155).

It may be as well to mention that this charming little Owl was dedicated by Mr. Burton to the late eminent surgeon Sir Benjamin C. Brodie, Bart., "in token of high respect and ancient friendship."

Head, all the upper surface and wings olive-brown, crossed by numerous bands of fulvous, which are lightest or almost fawn-white on the forehead and over the eyes; primaries very dark brown, with a row of irregularly shaped spots of fulvous along the outer web; at the back of the neck a conspicuous deep fulvous collar, with a spot of black on each side; the scapularies next the wing dashed with fawn-white; tail dark brown, crossed by seven or eight narrow bands of fulvous, placed at regular intervals; facial disks spotted and striated with fulvous and grey on a dark brown ground, and edged with a ring of white; chin, centre of the breast, and margins of the feathers of the lower part of the abdomen and flanks white, or faintly tinged with yellow; under surface dark olive, banded with pale fulvous and white; bill and toes pale greenish yellow; irides pale yellow.

The figures are of the natural size.



Gerald v.H.C. Richter del. et lith.

SYRNIUM OCELLATUM. *Less.*

Walter Imp.

SYRNIUM OCELLATUM, *Less.*

Speckled Wood-Owl.

Syrnium ocellatum, Less. Rev. Zool., 1839, p. 289.—Gray & Mitch. Gen. of Birds, vol. i. p. 39, *Syrnium*, sp. 5.—Jerd. Birds of India, vol. ii. part 2. p. 870.—Gray, Hand-list of Birds, vol. i. p. 49.

——— *sinense*, Jerd. Birds of Ind., vol. i. p. 123.

Strix sinensis, Hard. & Gray, Ill. Ind. Zool. pl. 21.

Bulaca ocellata, Blyth, Ibis, 1865, p. 29; 1866, p. 253.

"What's in a name?" is a frequent exclamation to indicate that the matter referred to is of no moment; but if any of my non-scientific readers had to work out synonymies, they would find that in many instances it would be precisely the reverse. Thus it would appear that the beautiful and well-known Owl, figured some forty years ago, in Hardwicke and Gray's 'Illustrations of Indian Zoology,' under the name of *Strix sinensis* has borne an appellation which does not and cannot belong to it, since it was applied by Latham to a bird which he places among the Eared Owls both in his 'Index Ornithologicus' and his 'General History of Birds.' Under these circumstances, we must agree with Mr. Blyth that Lesson's specific appellation of *ocellatum* should be retained for it. Moreover the term *sinensis* would be very inappropriate, inasmuch as the bird is never found in China; while *ocellatum*, as descriptive of its markings, is an excellent one: under this appellation I have therefore figured it on the accompanying Plate, my drawing being taken from a specimen obtained in India proper. The *Syrnium ocellatum* belongs to a small division of the Owls to which the subgeneric name of *Bulaca* has been applied; it will be seen, however, that I have preferred to retain it under that of *Syrnium*.

I have stated that this bird is not found in China, and I may mention that Mr. Swinhoe did not meet with it in any of his extensive wanderings in the Celestial Empire. Of its habits and economy little is known. As far as we are aware, there is no external difference in the sexes. Its soft and moth-like plumage renders it one of the most attractive members of its great family.

"This very beautifully plumaged Owl," says Mr. Jerdon, "is found throughout the greater part of India. It is only met with in well-wooded districts, at no great elevation. I have found it most numerous in the Carnatic and in parts of Mysore, frequenting groves of trees and avenues; it is rare in Central India and the forests of Malabar, but does not occur in Lower Bengal. It emits a loud, harsh, dissonant hoot."

"I never obtained a Bengal specimen," remarks Mr. Blyth; "but I once picked up an unmistakable feather of this bird in a mango-tope, some thirty miles above Calcutta. I have never seen it from the eastward. A specimen is noted by Mr. F. Moore from the Himalaya; but I doubt this alleged habitat, and believe that it was from one of the Subhimalayan valleys. Capt. J. Hutton has well remarked that an ordinary collector at one of the Himalayan Sanitary Stations (say Másuri) employs three or four native *shikáris*, and sends one or two of them far into the interior of the hills, and others down into the Subhimalayan valley of the Deyra-doon; and their gatherings of birds, insects, and so forth (from quite different faunæ or assemblages of species) are alike brought to England as a collection from the Himalaya! Thus untravelled students are apt to be misled."

Upper surface rich tawny buff; each feather of the head and nape tipped with black, within which are two or more irregularly shaped spots of white, which increase in size (and in some instances are mottled with black in the centre) towards the mantle; feathers of the back, scapularies, wing-coverts, and upper tail-coverts with a series of large patches of white, freckled with dusky on each web, the central line and the lines dividing the patches being of a blackish brown; primaries tawny at the base, and blackish brown for the remainder of their length; the tawny portion crossed by dark brown bands, the exterior webs by irregular mottled bands, and the dark portion of the inner webs by faint irregular bands of a lighter tint; tail tawny at the base, gradually deepening into dark brown near the tip, the whole crossed by broad, irregular, mottled bands, dark on the basal portion and becoming nearly white towards the tip, which terminates in white; facial disks white, brown, and fulvous, the white occupying the shafts of the feathers; the edges of the disks white, surrounded by a dark brown ruff; chin white; undersurface of the body beautifully banded with tawny white and brownish black, each feather being tawny at the base, and white crossed with three bands of brownish black for the remainder of their length; tarsal feathers similar, but the tawny tint prevailing on the upper portion, and the grey or white on the lower part of the limbs; bill black; eyelids orange, irides dark brown; soles of the feet yellowish; claws dusky.

The figure is somewhat smaller than the natural size.



STRIX INDICA, *Blyth.*

STRIX INDICA, *Blyth.*

Indian Screech-Owl.

Strix flammea, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 41.—Gould, in Proc. of Zool. Soc., 1859, p. 151.

—— *javanica*, Jerd. Madras Journ. of Lit. and Sci., vol. x. p. 85.—Sykes, in Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. p. 81.—Jerd. Birds of Ind., vol. i. p. 117.

—— *indica*, Blyth, in Ibis, 1866, p. 250.—Gray, Hand-list of Birds, part i. p. 52.—Holdsw. Proc. of Zool. Soc., 1872, p. .

Karaya and *Karail*, Hind. ; also *Buri-churi*, *i. e.* the bad bird.—Jerdon.

Chaao pitta, Telugu, and *Chaao-Kuravi*, Tamul, both meaning death-bird.—Jerdon.

However far to the eastward from Europe the Common Owl (*Strix flammea*) may range, it does not appear to extend to India, as was formerly supposed, its place in that country being occupied by the present species, which may be easily distinguished by its larger size, longer tarsi, much larger feet, by the more buffy hue of its plumage, and the smaller size of the spots with which it is ornamented. To what extent this bird ranges over the islands of the Eastern archipelago, or if it is found there at all, is not known with certainty. Mr. Swinhoe does not notice it as a species found in China; neither is it, I believe, identical with the *Strix javanica* of Dr. Horsfield—that is, if the figure given of the latter by Gray and Mitchell, in their 'Genera of Birds,' be a correct representation of the Java bird. Mr. Jerdon is the principal writer on this species; and he, I regret to say, has furnished but little respecting it; what he has said, together with a brief note by Col. Sykes, will be found below—as also a short paragraph kindly furnished to me by Mr. E. W. H. Holdsworth, who has recently returned from Ceylon, respecting its range and habits as observed by him in that island, and which forms a part of his "Catalogue of the Birds of Ceylon," to be published in the 'Proceedings of the Zoological Society of London' for 1872.

"The Indian Screech-Owl," says Dr. Jerdon, "is found throughout India and Ceylon, ascending through Burmah to Malayana. Sometimes it takes up its quarters in a grove of old trees, in the holes of which it roosts during the day; at others it lives in deserted buildings, tombs, pagodas, mosques, &c.; and I have often found them in the solitary cells and powder-magazines which are generally situate at a little distance from the lower part of a cantonment. It hunts entirely by night, not coming forth until it is quite dark, and lives on rats, mice, shrews, &c. More than once, one has flown into a room in which I was sitting with open doors and windows, after a rat that had entered. It breeds both in holes in trees and buildings."

Col. Sykes remarks:—"One of my specimens was captured alive while lying on its back on the ground, defending itself against the attacks of a body of Crows."

"*Strix indica*," says Mr. Holdsworth, "is very local in Ceylon, and is entirely confined to the north of the island. Layard gave the Fort of Jaffna as the only locality for it; but I have since obtained it at Aripo, where a pair of these Owls were resident. They frequented a Government storehouse in my compound, each bird regularly perching in a dark corner under the roof at opposite ends of the long building, and apparently living in harmony with the hundreds of Bats which hung from the roof and walls around. I have never observed these birds out of doors until some time after sunset."

Upper surface buff, minutely freckled with grey and with one or two small spots of brown and white near the tip of each feather; quills and tail darker or richer buff, freckled with grey on the outer margins, passing into white on the inner, and crossed with distinct bands of brown; facial disk white, with a rufous patch at the inner corner of the eye; ruff mingled yellow and rufous; undersurface, including the under wing-coverts white in some, and pale yellowish buff in others; the feathers of the breast and abdomen ornamented with a small brown spot at the tip of each; bill horny yellow; irides black; legs and feet yellowish brown.

I remark that in specimens of the European *Strix flammea* the presence of bands on the primaries is only indicated on their undersurfaces by small spots near the shaft, while in *Strix indica* these marks are much larger, and extend across somewhat more than half the breadth of the web.

The principal figure represents the bird, of the size of life.



J. Gould & H.C. Richter del. et lith.

STRIX CANDIDA, *Tickell.*

Walter Imp.

STRIX CANDIDA, *Tickell.*

Grass-Owl.

Strix candida, Tick. in Journ. Asiat. Soc. Beng., vol. ii. p. 572.—Jerd. Ill. Ind. Orn., pl. 30.—Id. Birds of India, vol. i. p. 118.—Gould, Supp. Birds of Australia, pl. 1.—Swinh. in Proc. Zool. Soc., 1871, p. 344.
—— *longimembris*, Jerd. in Madras Journ. of Lit. and Sci., vol. x. p. 86.
—— *Walleri*, Diggles, Orn. of Australia, part vii. pl. 1.
—— *pithecops*, Swinh. in Ibis, 1866, pp. 396, 397.
Scelostrix candida, Blyth, in Ibis, 1866, p. 251.
Glaux javanica, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 42.
Strix javanica, Horsf. and Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. i. p. 81.
—— (*Glaux*) *candida*, Gray, Hand-list of Birds, part i. p. 53.

That this fine Owl ranges over the greater part of the Old World, there can be no doubt, since I find little or no difference between specimens collected on the peninsula of India and those from the great grassy plains of Eastern Australia. It is supposed to inhabit the intermediate islands (Java included); and though I have not seen specimens from Java, it is probable that it inhabits both that island and the Philippines; for I observe that Mr. Swinhoe, in his 'Revised Catalogue of the Birds of China and its Islands,' mentions that it frequents South-west Formosa.

Structurally, this bird differs from the rest of the typical members of the restricted genus *Strix* in the much greater length of its tarsi, which was doubtless the occasion of Dr. Kaup's proposing for it a separate generic appellation—that of *Scelostrix*; but I do not think this difference a character of much importance, inasmuch as the tarsi of the Indian Screech-Owl (*Strix indica*) are directly intermediate in length between those of this species and those of the Common Barn-Owl of Europe (*S. flammea*); at the same time I may mention that the propriety of the separation would seem to be supported by the difference which is found to exist in the colouring of the young of the *Strix candida* and the young of our well known Barn-Owl,—that of the latter being snow-white, while that of the former is tawny, as shown on the opposite Plate. Those who may think proper to adopt Dr. Kaup's generic appellation of *Scelostrix* for it are, of course, at liberty so to do; for myself, I prefer to retain it in the genus *Strix*. The lengthened tarsi are admirably adapted for standing upon the great grassy plains in the midst of which this Owl principally dwells, and for rising therefrom with much greater ease than the shorter-legged members of the genus, which generally frequent trees, rocks, towers, and other buildings; this character, therefore, may be regarded as a special means to an end, and one which is as apparent as it well can be. The precise food of the *Strix candida* is not known; small quadrupeds, young birds, reptiles, and insects are doubtless what it lives upon in India, while the numerous little rodents which inhabit the grassy plains, sandy glades, and ridges of Australia afford it an abundance of food in that country.

I have not failed to observe that the plumage of the adult Indian birds is darker in colour, has the brown washes more uniform or spread about, and the white speckles smaller and less diffused than that of the Australian bird; still this does not induce me to believe they are other than one and the same species. The adult specimen from which my figure was taken formed, I believe, a part of the collection made by the Marquis of Blandford during his researches in India.

Respecting this species, Mr. Jerdon says:—"The Grass-Owl is found throughout the greater part of India, but thinly scattered and by no means plentiful. I first procured it on the grassy side of a hill on the Neilgherries, at about 6000 feet elevation. I afterwards obtained it in the Carnatic and in Central India; and it was procured by Tickell in the same district, and probably occurs also in the North-western Provinces; for Mr. Philipps, in the 'Proceedings of the Zoological Society of London,' mentions its living in long grass, and being found in abundance some miles from Hodal; Tickell, too, mentions its being found throughout Bengal and the Upper Provinces.

"Our species does indeed live almost exclusively in long grass, not frequenting jungles or coming near the haunts of man. It is probably not rare in some localities; for, on the occasion of the long grass and reeds in the dry bed of a large tank near Nellore being fired to drive out some wild pigs, I saw at least twenty of these Owls. It in general rises heavily and flies only a short distance, when it drops down suddenly into the grass. Mr. Philipps mentions that it may sometimes be put up and chased by Hawks. I presume he means by trained Falcons; for I have heard that a favourite quarry for hawking in the Punjab is a Grass-Owl, which gives an excellent and long chase. It must be remembered, however, that *Otus brachyotus* frequents similar localities, and may be the Owl alluded to, rather than this one."

Upper surface tawny yellow, each feather broadly terminated with brown and a small white spot at the tip, or brown with a white terminal spot and tawny at the base; primaries and secondaries fulvous yellow, distinctly barred with brown, freckled on their outer margins with pale or greyish brown, and fading into white on the margins of their inner webs; tail buffy yellow, fading into white on the outer feathers, or white crossed by four dark brown bars and freckled with a lighter *tint* at the tip; facial disk whitish or buffy white, with a dark brown spot at the inner angle of the eye; ruff or margin of the disk dark fulvous; under surface yellowish white, with a small spot of brown at the tip of each feather; irides very dark brown; bill horny; legs yellowish.

In the youthful state the facial disk and markings are deep tawny; the body is clothed in a lengthened greyish buff down; and the feet and claws are dull flesh-colour.

The Plate represents an adult and a young bird, of the size of life.



CAPRIMULGUS MAHRATTENSIS. *Sykes.*

J. Gould. and H.C. Richter del et lith.

Hullmandel & Walton Imp.

CAPRIMULGUS MAHRATTENSIS, *Sykes.*

Mahratta Nightjar.

Caprimulgus Mahrattensis, Sykes in Proc. of Comm. Sci. of Zool. Soc., Part II. p. 83.—Gray and Mitch. Gen. of Birds, vol. i. p. 48.

I FIND that Colonel Sykes was the first to notice and give a defined description of this delicately marked species of *Caprimulgus*. The Colonel's collection was chiefly formed in the Dukhun; and in the East India Company's Museum there are specimens of this bird collected by Mr. Griffiths on the banks of the Sutlej, and others from Shikarpoor, near Caubul; it is evident therefore that the species is very generally diffused over the western portions of India. Two specimens were contained in the collection made by Capt. Boys, and one in that formed by Dr. John Murray, Civil Surgeon at Agra; and it is from this specimen, now forming part of the fine collection of Indian birds belonging to Andrew Murray, Esq., of Aberdeen, that one of my figures was taken.

The species to which the *Caprimulgus Mahrattensis* is most nearly allied, is the *C. Isabellinus* of Africa; from which, however, among other characters, it may be readily distinguished by the shorter and more square form of the tail; and Colonel Sykes remarks that it differs from the *C. monticolus*, Frankl. and *C. Asiaticus*, Lath., "in the prevalent greyness of the plumage, and in the absence of the subrufous collar on the nape of the neck."

No account whatever can be given of its habits, the following brief entry in Captain Boys' Notes being all that has yet been placed on record respecting it: "One shot at Sultanpoor, Jan. 2, 1840, weighed twenty drachms. Others were shot at Parunpoor on the Ganges, Dec. 15, 1846." In the absence then of all information on the subject, we may reasonably infer that they are very similar to those of the other true *Caprimulgi*.

General tint pale stone-colour, produced by very minute pencillings of brown on a pale buff ground; near the tips of the feathers the pencillings are interrupted, leaving an irregular-shaped mark of buff, immediately beneath which is a smaller irregular mark of brownish black, which shows very conspicuously on the crown and scapularies; primaries blackish brown, the first with a large oval spot of white about the middle of the inner web, the two next crossed by a band of white stained with buff on the outer web; the remainder of the primaries and the tips of the first three buffy brown, freckled and crossed by irregular bars of blackish brown; tail similar in general appearance to the upper surface, but crossed by narrow irregular bars of black; the two outer feathers on each side largely tipped with buffy white; throat similar to the upper surface, but with a white pear-shaped mark on either side below the angle of the gape; abdomen stone-colour, crossed by narrow irregular bars of brown; irides dark brown; bill reddish, with a black tip; legs dirty flesh-colour.

The female differs in having the entire upper surface more strongly marked, in having the tips of the outer tail-feathers not so largely marked with buff, the white spots on the first three primaries much smaller, and the white less pure, and in being a little less in all her admeasurements.

The Plate represents both sexes of the natural size, near a *Rheum Webbianum*.

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CYPSELUS INFUMATUS, *Sclat.*

CYPSELUS INFUMATUS, *Sclat.*

Palm-roof Swift.

Cypselus infumatus, Sclat. in Proc. Zool. Soc., 1865, p. 602.—Jerd. in Ibis, 1871, p. 355, pl. x.—Swinh. in Proc. Zool. Soc., 1871, p. 345.—Gray, Hand-list of Birds, part i. p. 64.
—— *tinus*, Swinh. in Ibis, 1870, p. 90.
—— *tectorum*, Jerd. Proc. of Asiat. Soc. Calcutta, 1870, p. 71.—Godwin-Austen, Cat. of Birds in Journ. Asiat. Soc., 1870, p. 94.

I am indebted to Mr. Jerdon for the loan of a specimen of this little Swift, which, as will be seen above, has already received three specific names, that proposed by Mr. Sclater having the priority. When characterizing it this gentleman remarked :—"I have as yet seen but a single example of this species, now in Mr. Wallace's possession. It formed part of the collection made by the late Mr. Mottley at Banjermassing, in Borneo, for Mr. L. L. Dillwyn. It is decidedly a *Cypselus*, allied to *C. batassiensis* of India. I have searched in vain for this species among the treasures of the Leyden Museum."

Besides Borneo, it has also been found in India, where Mr. Jerdon informs us, in 'The Ibis' for 1871, that "Major Godwin-Austen procured this interesting Swift on the Naga hills, and subsequently on the Garo hills, where it had also been obtained by a native collector employed by Dr. Anderson. The Garo hills are a direct continuation of the Naga hills—the Khasia and Jynteea hills, however, intervening, where this Swift is not known. The more highly civilized Khasi race have better houses than their neighbours on each side, who use huts thatched with palm-leaves; on these roofs this Palm-Swift invariably builds its nest. Mr. Hume, who saw the specimen I was taking home, subsequently identified it, doubtfully, with Sclater's *C. infumatus*; and on comparison of the unique specimen existing in England of that Swift, they were found to be identical, and Mr. Hume's ingenious surmise proved correct."

Mr. Swinhoe also includes it in his list of the Birds of China, and, speaking of it in 'The Ibis' for 1870 under the name of *Cypselus tinus*, which, believing it to be a new species, he there assigned to it, says :—"I first noticed this little species at Tai-ping-sze (Central Hainan), where a single pair passed over my head, and I shot one. Among the cocoa-nut trees on the sandbanks of Lingshuy lagoon (S.E. Hainan) they were common enough, and we procured several. It was the 10th of March; but there did not appear any signs of nidification. On the 18th of March, at Nychow (S. Hainan), I again saw numbers of them flying backwards and forwards over a wood near the city.

"This species is of the same typical form as *C. batassiensis*, Gray, of India and Burmah, but is smaller and more deeply coloured, with a shorter and narrower bill, longer wings, and less forked tail. It appears to be a good second species of the Palm-Swift type, which connects *Cypselus* with *Collocalia*."

In his 'Revised Catalogue of the Birds of China and its Islands,' Mr. Swinhoe remarks :—"I have compared my specimens with Dr. Jerdon's type from Upper Assam, and with Dr. Sclater's type from Borneo in Mr. Wallace's collection, and find them all to be of the same species."

The courtesy of Major Godwin-Austen having induced him to permit my copying a drawing representing the bungalows, or native dwelling-places, under which this bird builds, I am enabled to render the opposite Plate much more interesting than it could otherwise have been. Such sketches are in the highest degree useful to the ornithologist; and it is to be regretted that similar illustrations of the breeding-habits of birds are not more frequently made.

The following is Mr. Swinhoe's description and admeasurements of this little Swift :—

"Above deep sepia-brown, with a slight deep-green iridescence; rump lighter, beneath much brighter; wings and tail brownish black, the former with pale inner edges; between the bill and the eye a whitish spot; bill and legs blackish brown, with a pink tinge; iris deep hazel.

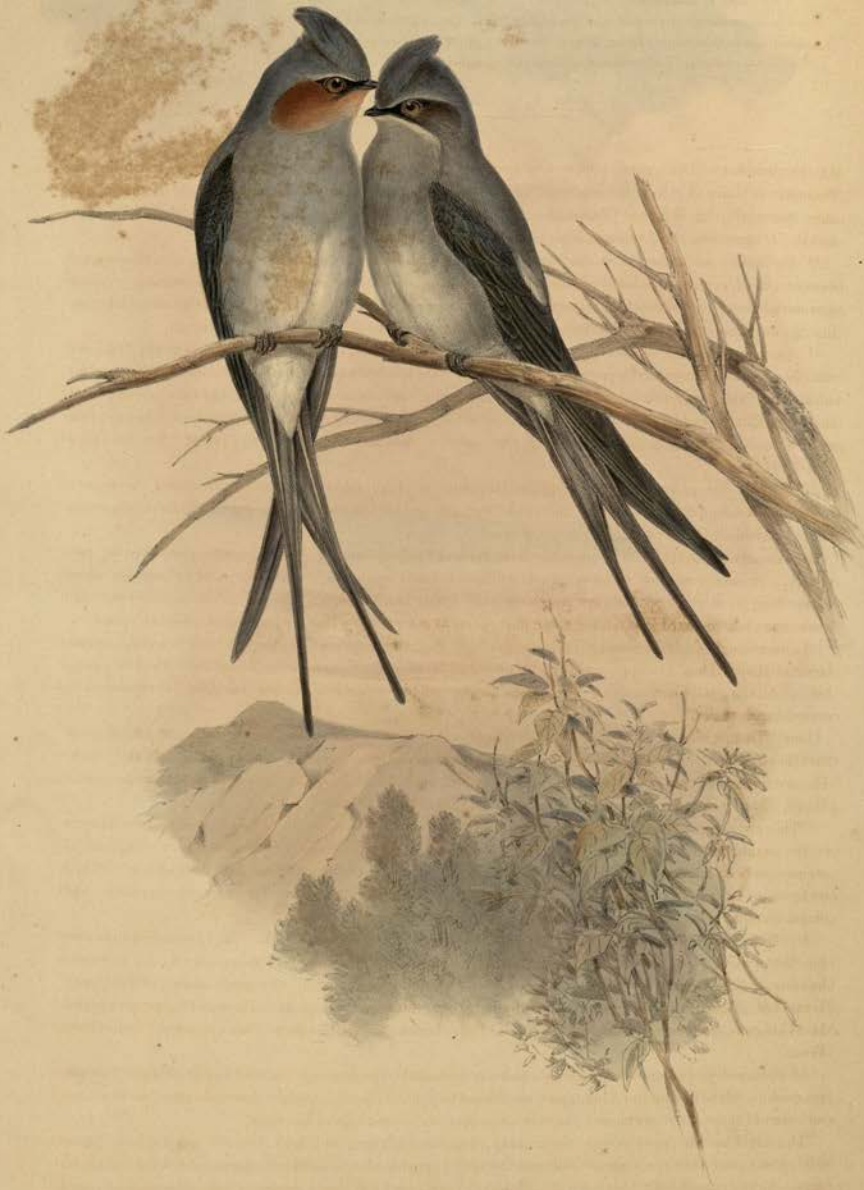
"Length about 4·5; wing 4·75; first quill attenuating to the tip, and ·25 in. shorter than the second; tail 2·25, middle rectrices ·875 shorter than the laterals.

"The female is a trifle shorter in the wing, but is otherwise similar to the male."

Dr. Jerdon's specimen, from which my figures were taken, was darker than those described by Mr. Swinhoe; but as he states that he has carefully compared them, I must also consider them identical; probably the examples were procured at different seasons; or the variation may be due to age.

The Plate represents this bird of the size of life.





DENDROCHELIDON CORONATUS.

DENDROCHELIDON CORONATUS.

Crested Tree Swift.

Hirundo coronata, Tick. Journ. Asiat. Soc. Beng., vol. ii. p. 580.
Macropteryx longipennis, Jerd. Madras Journ. Lit. and Sci., vol. xi. p. 236.
——————— *coronatus*, Blyth, Journ. Asiat. Soc. Beng., vol. xv. p. 21.—Gray, List of Birds in Brit. Mus., part ii. sect. 1. *Fissirostres*, p. 17.
——————— *coronata*, Layard in Ann. and Mag. Nat. Hist., 2nd ser. vol. xii. p. 167.
Dendrochelidon schisticolor, Bonap. Consp. Gen. Av., p. 66, *Dendrochelidon*, sp. 3.
——————— *velatus*, Less.—Bonap., Rivista Contemporanea, Feb. 1857, p.

All the members of this genus appear to be confined to particular areas, the present species inhabiting the Peninsula of India, Ceylon, Malasia, and China; its nearest ally, the *D. Klecho*, Java and Sumatra, and, more sparingly, the Malayan Peninsula; the *D. Wallacei*, Macassar; the *D. comatus*, the Philippines; and the *D. mystaceus*, the Aru and New Guinea groups of islands.

Of the habits and manners of the whole of these birds but little has been recorded: in this respect, however, the *D. coronatus*, being a native of the Peninsula of India, the birds of which have naturally received a greater share of attention than those of the more remote parts of the country, has been more fortunate than its congeners; and the following notes, though meagre, will not be destitute of interest.

"I first observed this species," says Captain Boys, "at Mandoo, where, with much difficulty, and only with No. 1 shot, I succeeded in procuring two males. On the 3rd of June, 1840, I obtained other examples, which were flying over the deep dell near Suckteysghur, and occasionally came within shot of the top of the waterfall at that place. I only observed four or five pairs, out of which I shot five birds; the next day not one was visible. Other specimens were procured in the same locality on the 14th of May and 1st of June, 1841.

"This bird flies exceedingly high, affects the tops of high table-lands, and is frequently to be seen hovering over deep chasms. During flight the long tail-feathers are constantly opened and shut, the motion closely resembling the action of a pair of scissors."

Mr. Layard states that it is "generally distributed in Ceylon, but affects the jungles more than the open country. It usually selects an elevated and leafless branch, from which it sallies in quest of insects; when on the wing, it utters a peculiar cry resembling the words '*chiffle, chaffle,*' '*Klecho, Klecho,*' often repeated. Sometimes I have heard it utter the same note when at rest, rapidly elevating and depressing the crest.

"I never could find the nests of this species; but the natives assure me they are built in old *Euphorbia* trees in the jungles. It appears about Colombo in March, and disappears in December. I shot a young bird in March; its plumage was green, each feather edged with white, causing the bird to appear as if covered with scales."

Lieut. Tickell informs us, in his "List of Birds collected in the Jungles of Borabhúm and Dholbhúm," that this bird flies "in large flocks, but is partially met with hovering over the marshy places of the jungles. The note resembles the monotonous '*kia kia*' of the parrot. It disappears in these regions by the end of March; but I never could trace the direction of its flight."

"This very elegant *Swift*," says Mr. Jerdon, "is only found in the South of India, in high forest jungles in the neighbourhood of hills. I have seen it in Goomsoor, at the foot of the Neilgherry Hills, and in various parts of the jungle of the western coast. It frequently perches on bare and leafless trees. While on the wing, it has a somewhat loud parrot-like cry, very different from that of the other species. The elegant frontal crest is frequently raised when the bird is sitting."

Mr. Blyth states, in the Supplement to his "Memoir on the *Cypselidæ*," that Mr. Layard had informed him that in Ceylon this species is "periodical in its appearance, and not very uncommon in a few favourite localities in the environs of Colombo. It perches readily and continually on trees, sailing off for prey." To this Mr. Blyth adds that "to the northward it does not appear to occur in the sub-Himalayan region: Mr. Hodgson never met with it in Nepal; and Capt. Hutton assures us that it does not occur in the Deyra Doon."

Independently of examples from India, there are beautiful specimens of this bird in the British Museum, procured by Mr. Fortune in China, and also from Ceylon. There is rather more chestnut on the throat and ears of these latter specimens; in other respects they appear quite the same.

The male has the crown of the head, neck, back, rump, chest, and flanks delicate grey slightly glossed with green; over the eye a narrow indistinct stripe of greyish white; shoulders, wings, and tail dull brownish green, slightly tinged with blue on the shoulders; tertiaries light grey; centre of the abdomen and under tail-coverts white; throat and ear-coverts lively reddish chestnut; lores black; bill and legs bluish black; soles of the feet reddish white; irides deep brown.

Total length, $8\frac{1}{2}$ inches; bill, $\frac{1}{2}$; wing, 6; tail, $5\frac{1}{4}$; tarsi, $\frac{1}{4}$.

The female is said to be destitute of the chestnut throat and ear-mark, but in other respects to resemble her mate.

The figures are of the natural size.



DENDROCHELIDON KLECHO.

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

DENDROCHELIDON KLECHO.

Klecho Tree Swift.

Hirundo Klecho, Horsf. in Trans. Linn. Soc., vol. xiii. p. 143.—Lath. Gen. Hist., vol. vii. p. 293.

Dendrochelidon Klecho, Boie, Isis, 1844, p. 106.—Bonap. Consp. Gen. Av., p. 66, *Dendrochelidon*, sp. 2.—Ib. Rivista Contemporanea, Feb. 1857, p. .—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 110.

Macropteryx Klecho, Gray and Mitch. Gen. of Birds, vol. i. p. 54.—List of Birds in Brit. Mus., part ii. sect. 1. *Fissirostres*, p. 17.—Blyth, Journ. of Asiat. Soc. Beng., vol. xiv. p. 212, vol. xv. p. 22, and vol. xxiv. p. 479.—Ib. Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 87.

Cypselus longipennis, Temm. Pl. Col. 83.

Macropteryx longipennis, Swains. Zool. Ill., 2nd ser., pl. 74.

Hirundo urbica, Raffles in Trans. Linn. Soc., vol. xiii. p. 315.

Apus (Pallestre) Klecho, Less. Compl. Buff., tom. viii. p. 490.

Cypselus Klecho, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 81.

Samber-galeng of the Javanese, Horsfield.

The *Dendrochelidon Klecho* of Java is distinguished from the *D. coronatus* of India and the *D. Wallacei* of Macassar by the deep green colouring of its head, back, and shoulders; it is also somewhat smaller in size than either of those birds. Its true habitat is Java and Sumatra; but it is also said to inhabit the Indian Archipelago and Malacca. I have now before me several specimens lent to me from the East India House Museum, all of which present the same difference in colour that I have mentioned above, namely, the deep green tint pervading the upper surface, which in *D. coronatus* is grey or greenish grey.

Dr. Horsfield, who observed this bird during his residence in Java, mentions that the male has a spot of chestnut below the ears, which mark is wanting in the female, confirming the accuracy of Mr. Wallace's labels as to the sexes of the specimens of another species dissected by him.

The following is the description of an example of this bird which I consider to be fully adult:—

The male has the crown of the head, back of the neck, and back deep green, slightly tinged with umber-brown; lower part of the back and rump greenish grey; throat and under surface deep greenish grey, becoming much lighter on the centre of the abdomen and under tail-coverts; shoulders green; primaries bluish green; a patch of greyish white on the tertiaries; tail green; a spot of dark chestnut on the ear-coverts; bill and feet black; irides brown.

Total length, 8 inches; bill, $\frac{1}{2}$; wing, $6\frac{1}{4}$; tail, $4\frac{3}{4}$; tarsi, $\frac{1}{4}$.

The female is similarly coloured, but has the ear-coverts green instead of chestnut.

A young male which had nearly completed his moulting has the white feathers of the centre of the abdomen and under tail-coverts strongly barred with brown, and the shining green of the head, back, and wings very clear and well-defined. I observe, too, that although the wings are as fully developed and quite as long as in the adults, the tail is comparatively short, particularly the outer feathers, suggesting the idea that, like those of our own Common Swallow, these feathers do not attain their greatest length until the bird is two or three years old.

The figures are of the natural size.



DENDROCHELIDON WALLACEI, *Gould.*

Hullmandel & Walton imp.

DENDROCHELIDON WALLACEI, *Gould.*

Wallace's Tree Swift.

Dendrochelidon Wallacei, Gould in Proc. of Zool. Soc., Feb. 8, 1859.

The Tree Swifts have, with much propriety, been separated into a distinct genus, now comprising five well-marked species, which some naturalists may opine might be even still further subdivided, by the separation of *D. mystaceus* and *D. comatus* from the *D. Klecho*, *D. coronatus*, and the subject of the present paper, *D. Wallacei*. Such a division, however, I do not think it necessary to institute; at the same time I do not fail to observe its indication in the birds themselves.

After carefully comparing Indian specimens of *D. coronatus* and Javanese specimens of *D. Klecho* with examples of a bird of the same form sent from Macassar by Mr. Wallace, I could come to no other conclusion than that the latter is a very distinct and undescribed species, and I therefore took the opportunity of naming the bird *D. Wallacei*, in honour of its discoverer; not that there is any necessity for me to attempt to perpetuate the name of this gentleman as a promoter of natural science, since his writings sufficiently attest his devotion to more than one of its departments.

In size, the *D. Wallacei* far exceeds both the *D. Klecho* and the *D. coronatus*; besides which, it is readily distinguished from either of them by the deep blue colouring of its shoulders and wings.

The only information we have respecting this bird is, that it is a native of Macassar, and that the sexes exhibit the same difference in the colouring of the ear-coverts that is observable in the other species of the genus.

The male has the crown of the head deep green, with steel-blue reflexions; lores black; over each eye an indistinct stripe of greyish white; sides and back of the neck and the upper part of the back green, passing into grey on the lower part of the back and rump, which colour again passes into the bluish green of the upper tail-coverts; below the ear a spot of chestnut; shoulders blue, with reflexions of green; primaries bluish black, with green reflexions; tertiaries greyish white; tail bluish black; throat and under surface grey, passing into greyish white on the vent and under tail-coverts; bill and feet olive.

Total length, 10 inches; bill, from gape to tip, $\frac{1}{2}$; wing, $7\frac{3}{8}$; tail, $5\frac{1}{4}$.

The female is destitute of the chestnut ear-spot; in other respects her colouring is similar to that of her mate.

The figures are of the natural size.



DENDROCHELIDON MYSTACEUS.

Hullmandel & Walton, Imp.

Gould and H.C. Richter, del. et lith.

DENDROCHELIDON MYSTACEUS.

Bearded Tree Swift.

Cypselus mystaceus, Less. Voy. de la Coq., Ois., t. 22.

Macropteryx mystaceus, Swains. Class. of Birds, vol. ii. p. 340.—Gray, List of Birds in Brit. Mus., part ii. sect. i. *Fissirostres*, p. 17.—Ib. Proc. of Zool. Soc., part xxvi. p. 170.

Apus mystaceus, Less. Traité d'Orn., p. 268.

—— (*Pallestre*) *mystaceus*, Less. Compl. Buff., tom. viii. p. 491.

Dendrochelidon mystaceus, Boie, Isis, 1844, p. 166.—Bonap. Consp. Gen. Av., p. 66, *Dendrochelidon*, sp. 5.—Ib. Rivista Contemporanea, Feb. 1857, p. .

This truly magnificent Tree Swift—the largest member of its genus—was first made known to us by M. Lesson, and afterwards figured in that fine French work the "Voyage de la Coquille." In the size of its body and in the great length of its wings, it so far exceeds all the other known species, that it cannot possibly be confounded with either of them. Its true habitats are the Aru Islands and New Guinea, to which countries it would seem to be confined; for, although its lengthened wings and consequent great powers of flight would lead to the supposition that it enjoys a wide range from these centres, we have no positive evidence that such is the case, none but the French voyagers and Mr. Wallace having obtained specimens. It is to Mr. Wallace more particularly that we are indebted for the numerous examples which have lately been transmitted to this country; these were not only shot, but were also dissected by this intrepid traveller; and thus we learn, from the labels which are carefully attached to each specimen, that those having the chestnut spot on the ear-coverts are males, and those in which this mark is wanting are females. At some future time we may hope to be gratified by receiving some account of the habits of this noble bird, as, second to the transmission of specimens, such an account would be of the greatest interest.

The male has the crown, wings, and tail steel-blue, tinged with white or greyish white on the tertiaries; the outer webs of the external feathers are also grey near their bases; lores black; above and below the eye a stripe of white extending into lengthened plumes; ear-coverts grey, immediately below which is a spot of chestnut; back, rump, throat, sides of the neck, chest, and flanks greenish grey; centre of the abdomen and under tail-coverts greyish white; bill and legs olive-black.

Total length, 13 inches; bill, $\frac{9}{10}$; wing, $8\frac{1}{2}$; tail, 8; tarsi, $\frac{3}{4}$.

The female, according to the labels on Mr. Wallace's specimens, resembles her mate, but is destitute of the chestnut throat and ear-mark.

The Plate represents both sexes of the natural size.



DENDROCHELIDON COMATUS.

J. Gould and H.C. Richter del et lith.

Hullmandel & Walton Imp.

DENDROCHELIDON COMATUS.

Hooded Tree Swift.

Cypselus comatus, Temm. Pl. Col. 268.

Dendrochelidon comatus, Boie, Isis, 1844, p. 166.—Bonap. Consp. Gen. Av., p. 66, *Dendrochelidon*, sp. 4.—Ib. Rivista Contemporanea, Feb. 1857, p. .—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 110.

Macropteryx comatus, Swains. Class. of Birds, vol. ii. p. 340.—Gray and Mitch. Gen. of Birds, vol. i. p. 54.—Cat. of Birds in Brit. Mus., part ii. sect. 1. *Fissirostres*, p. 17.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 87.

Apus comatus, Less. Traité d'Orn., p. 268.

—— (*Pallestre*) *comatus*, Less. Compl. Buff., tom. viii. p. 491.

Of all the known species of the genus *Dendrochelidon*, the present is perhaps the most ornamental,—its colouring being more diversified than that of any of its allies, and its snow-white eye-stripes and moustaches giving it an air of great elegance and beauty. The specimens from which my drawings were made were procured in Manilla, whence I received them direct. The usual chestnut ear-mark occurs in one of my specimens, in the other it is wanting; judging from the labels appended to Mr. Wallace's specimens of *D. mystaceus*, this chestnut marking indicates that the former is a male and the latter a female.

In Mr. Blyth's "Catalogue of the Birds in the Museum of the Asiatic Society at Calcutta," this gentleman gives "Eastern Malasia and Sumatra?" as the habitats of this bird; while the specimen in the Museum at the East India House is from Siam, where it was procured by Mr. Finlayson.

The male has the crown of the head, sides of the centre of the throat, the wings, and tail rich steel-blue, with a greyish-brown tint pervading the shorter primaries and some of the secondaries; some of the tertiaries white, forming a conspicuous spot on this portion of the wing; lores black; upper part of the throat and stripes above and below the eye white, continued in lengthened pencilled plumes; back, rump, chest, and abdomen deep olive-brown, with reflexions of light green; a bright chestnut spot on the ear-coverts; lower part of the abdomen and under tail-coverts white; bill and feet olive-brown.

Total length, $6\frac{1}{2}$ inches; bill, $\frac{7}{16}$; wing, $5\frac{5}{8}$; tail, $3\frac{1}{2}$; tarsi, $\frac{1}{4}$.

The female differs only in having the ear-coverts steel-blue instead of chestnut.

The figures are of the size of life.



HIRUNDO FILIFERA, *steph.*

J.Gould and H.C.Richter, del. et lith.

Walter, Imp.

HIRUNDO FILIFERA, *Steph.*

Wire-tailed Swallow.

Hirundo filifera, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 78.—Sykes in Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. 1832, p. 83 ; Journ. Asiat. Soc. Beng., vol. iii. p. 421.—Gray, Gen. of Birds, vol. i. p. 58, *Hirundo*, sp. 23.—Id. List of Spec. of Birds in Coll. Brit. Mus., part ii. sec. 1, *Fissirostres*, p. 25.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 197.—Bonap. Consp. Gen. Av., tom i. p. 338.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 93.—Jerd. Birds of India, vol. i. p. 159.

——— *filicaudata*, Frankl. in Proc. of Comm. of Sci. and Corr. of Zool. Soc., 1830-31, p. 115.—Journ. Asiat. Soc. Beng., vol. i. p. 263.

——— *ruficeps*, Licht. Verg. der Doubl. des Zool. Mus. zu Berl., p. 58.

——— (*Cecropis*) *filifera*, Less. Comp. Buff., tom. viii. p. 499.

Chilidon ruficeps, Boie, Isis, 1844, p. 171.

Wire-tailed Swallow, Lath. Gen. Hist., vol. vii. p. 309, pl. cxiii.

Leishra of the Hindoos.

Elegant in contour as are the members of the *Hirundinidæ* generally, I question if any Swallow yet discovered can excel the *Hirundo filifera* in this respect, neither is there one among them whose aërial movements are more graceful. None who have studied the various members of this family, and particularly those of the section to which our own Chimney Swallow (*Hirundo rustica*) pertains, can have failed to observe how greatly prolonged are the outer tail-feathers of the males, and that these deeply fork-tailed birds are characterized also by the elegant proportion of their wings and by a general structure suited for sustained flight and a variety of aërial evolutions. In some of the species the outer tail-feathers are more or less broad, while in others they diminish to the thread-like form seen in the present bird.

"This very beautiful Swallow," says Mr. Jerdon, "is found in small numbers throughout India, not in general ascending mountains to any height, but, according to Adams, occurring rarely in the north-west Himalayas and Cashmere. It is more rare in the extreme south of India than towards the north, and is unknown on the Malabar coast, Lower Bengal, and the countries to the eastward. It breeds in old buildings, on walls, in stone bowries or wells, very commonly under bridges, and in rocks overhanging water, making a small mud nest open at the top, and laying two or three eggs, which are white, sparingly spotted with rusty red. I always found the nests single, and we seldom see more than five or six couple in one place. The Hindustani name is given to it from a supposed resemblance of its thin tail-feather to the rod used for catching birds with bird-lime, which is called *Leishra*. It is said also to occur in the north-east of Africa.

"In the northern parts of the country it is very generally spread, and frequents not only the neighbourhood of water, but also fields, gardens, and open plains. Its long thread-like tail-feathers are only observable at a few yards' distance, and in consequence of this, nine-tenths of the Europeans in India are unaware of its existence. It occasionally perches on trees."

Colonel Sykes remarks that it is "very abundant in the Dukhun and very beautiful, with its thread-like tail-feathers floating behind when in flight."

With regard to the reported occurrence of this bird in Africa, I may remark that I am inclined to doubt the identity of the Indian and African birds; for fine examples of both now before me appear to differ too much to admit of their being considered as examples of one and the same species. The Gambian specimens are much smaller, have a lesser amount of rufous colouring on the head, and shorter tails.

As is the case with the Swallows in general, the sexes are alike in colour, but the female is of smaller size and has the outer tail-feathers much shorter than those of the male.

Crown of the head rich rusty red; lores black; upper surface, wings, and tail glossy steel-blue; throat and under surface generally pure white; all but the four central tail-feathers with a nearly square spot of white on the inner web near the tip; irides, bill, and feet black.

The figures are of the natural size.



CECROPIS RUFULA.

J. Gould & H.C. Richter, del. et lith.

Walter Imp.

CECROPIS RUFULA.

Western Mosque-Swallow.

Hirundo rufula, Temm. Man. d'Orn., 2nd edit. tom. iii. p. 298.—Schlegel, Rev. Crit. des Ois. d'Eur., pp. xviii et 41.—Simps. in Ibis, 1860, p. 386.—Tristr. in Ibis, 1867, p. 362.—Jaub. et Barth. de la Lapomm. Rich. Orn. du Midi de la France, p. 308.—Bonap. Consp. Gen. Av., tom. i. p. 338, *Hirundo*, sp. 12.

Much diversity of opinion exists among ornithologists as to whether the European, the Indian, the Siberian, and Japanese birds to which the generic title of *Cecropis* has been applied are merely local races of one, or are so many distinct species. If the former be the correct view of the case, then several other birds of this form inhabiting Africa from north to south, which have hitherto been regarded as species, must also be considered to be races only. But all these birds, both Asiatic and African, exhibit differences which, although they may appear trivial to a *cursory observer*, are nevertheless constant; and I believe that we shall be correct in treating them as distinct. In their structure, in the arrangement of their colours and markings, in their mode of nidification, and in their actions in the air, these birds differ so considerably from the members of the genus *Hirundo*, of which the Common Swallow is the type, that in my opinion the late Prince Charles Bonaparte was quite right in separating them into a distinct genus; and I therefore unhesitatingly adopt the term *Cecropis* he applied to them.

The *Cecropis rufula* is the European representative of the eastern *C. Daurica*, from which it differs in the much lighter colouring of the breast and rump, and in the almost total absence of striæ which are so conspicuous in the Siberian and Chinese birds. The particulars in which it varies from the Indian and Ceylonese birds will be found in my accounts of those species. In Europe, and all similar latitudes as far east as the *C. rufula* has been discovered, it is a migrant, visiting those countries only in summer. In Greece, the Holy Land, and Asia Minor it appears to be more plentiful than elsewhere; in Italy, France, and Germany it must be regarded as an accidental visitor; and those individuals which are seen still further northward, as in Heligoland and the one which has been supposed to have occurred in England, must be considered mere wanderers, going they know not whither. Eastward, it is believed to extend to the confines of Afghanistan; but no one has yet observed it in India. As is the case with all the typical Hirundines, little difference occurs in the colouring of the sexes of the present species; neither are they subject to any great change of plumage. As might be expected, its habits and mode of nidification closely resemble those of the Daurian Swallow, described by Pallas; and on this part of its economy I cannot do better than transcribe the interesting accounts published by Mr. Simpson in 'The Ibis' for 1860, and by the Rev. H. B. Tristram in the same work for 1867. Speaking of the bird as seen by him in Western Greece, the former gentleman says:—"It is very singular in its nidification, always fixing its nest under a cave or projecting slab of rock. In the little Klissoura, and throughout the precipices of Aracynthus, there are plenty of these caves—in former times a convenient refuge for the Klephts, as they now are for the shepherds tending their flocks during the winter months. This eccentric Swallow, not satisfied with having a good dry cave all to himself, must needs construct a long passage to his nest, thus giving it the shape of a retort with the upper part cut away and the remaining portion glued underneath a flat surface. The entrance is narrow, but the passage gradually widens till it finally opens into a sort of chamber very warmly lined with feathers; here the little fellow and his mate are sure to be most snugly tucked in just after sundown, when they can't see to catch any more insects. Escape, therefore, is impossible when a ruthless ornithologist wishes to capture the pair for the sake of identifying their eggs. No more than one pair are ever seen to occupy a cave, though the remains of previous nests could occasionally be traced on the roofs. The same pair appear to return year after year; and their nest, unless injured by shepherd boys during the winter, will merely require a little touching up to render it again inhabitable. The fact of the same birds returning was proved by those caves being untenanted where the pair had been captured during the preceding year. Several nests with eggs were found towards the end of May and beginning of June 1859. Four seems about the complement; they are quite white, and much resemble those of *H. urbica*, which could well be passed off for them in collections."

In his notes "On the Ornithology of Palestine," Mr. Tristram, when speaking of the Swallows observed by him, remarks: "Very distinct is that charming bird, *H. rufula*, Temm., belonging to a different group containing ten Old-World species, which have been separated by Bonaparte into a subgenus *Cecropis*. This bird does not return to Palestine till the end of March. We obtained our first specimens on the 28th. It then scatters itself over the whole country, and in the warmer and more marshy regions is the predominant species. It is a beautiful bird on the wing, showing its chestnut collar and rump to great

advantage, as it turns continually, flying much more slowly than the Common Swallow, and beating repeatedly over a more limited extent of ground. Though feeding in flocks, I never knew this Swallow to breed in company, and very rarely were two nests to be found in one cave. The nest is a beautiful structure, composed of the same materials as that of the House-Martin, but is invariably attached to the flat surface of the underside of the roof of a cave or vault. It is of the shape of a retort, with a bulb of the size of a Thrush's nest, large and roomy, the neck or passage for entrance being sometimes a foot or more in length. The inside of the clay chamber is warmly lined with feathers. Laborious as must be the construction of this elaborate edifice, the little architects are very fastidious, and frequently desert two or three half-finished nests in succession, commencing a new one in the same cavern. A favourite breeding-place is under the arches of the corridors of the Monastery on Mount Carmel. The eggs are four in number, pure white, considerably larger than those of the House-Martin, and flatter at the small end."

Crown of the head, back, scapularies, wing-, and upper tail-coverts deep glossy steel-blue, a few of the white basal portions of the feathers showing on the upper part of the back; wings and tail deep brownish black; line over the eye and collar at the back of the neck deep rusty red; rump rusty red on the upper part, fading into creamy white towards the tail; throat, under surface of the body, and under wing-coverts, creamy white, with a very fine hair-like line of brown down the centre of each feather; under tail-coverts tipped with bluish black, greatly increasing in extent on those nearest the tail; bill black; feet brownish black. In some specimens an indistinct mark of dull white appears on the centre of the outer tail-feathers.

The sexes are alike as regards their plumage; but the female is smaller than the male.

The figures are of the size of life.



CECROPIS DAURICA.

J.Gould & H.C.Richter del. et lith.

Walter Imp.

CECROPIS DAURICA.

Daurian Mosque-Swallow.

Hirundo daurica, Linn. Mant., p. 528.—Id. Syst. Nat., Gmel. edit. tom. i. p. 104.—G. R. Gray, Gen. of Birds, vol. i. p. 57.—Id. Cat. of Birds in Coll. Brit. Mus., part. ii. sect. i. p. 23.—Bonap. Consp. Gen. Av., tom. i. p. 339, *Hirundo*, sp. 14.

——— *alpestris*, Pall. Itin., tom. ii. App. p. 209. no. 9.—Id. Zoog. Ross.-Asiat., tom. i. p. 534, pl. 30. fig. 2.

——— *Dauurica*, Lath. Gen. Ind., vol. ii. p. 576.

——— (*Cecropis*) *daurica*, Less. Compl. Buff., tom. viii. p. 498.

Cecropis daurica, Boie, Isis, 1844, p. 174.

Dauurian Swallow, Lath. Gen. Syn., vol. iv. p. 570.—Shaw, Gen. Zool., vol. x. part i. p. 95.—Lath. Gen. Hist., vol. vii. p. 289.

Hirundo daiirica, Swinh. in Ibis, 1863, p. 255.—Id. Proc. of Zool. Soc. 1863, p. 287.

I am indebted to the Rev. H. B. Tristram for the very fine examples of this species from which my figures were taken. The representation of the nest is a modification of the drawing published by Pallas in the first volume of his 'Zoographia Rosso-Asiatica.' It will be seen that the rump of the Daurian Swallow is darker and more uniform in colour than that of the western *Cecropis rufula*, and, as noticed in my account of that species, the striæ on the breast are bolder and more clearly defined on a lighter ground; as Pallas expresses it "subtus corpus lutescente vel sordide albet, rhachibus linearitер nigris striatum." Striæ are also faintly indicated on the feathers of the wings. In size the two birds are very similar; but I have seen examples collected by Mr. Swinhoe that are much smaller than those I have figured. Pallas states that the Daurian Swallow inhabits the Altaian Alps, Dauria, Thibet, and China. Mr. Swinhoe adds to this range by stating that he found it in Southern China and the island of Formosa; he remarks, however, that the Formosan bird presents some peculiarities. "It is found," says this gentleman, "in the extreme north of China as a summer resident only; but in the south, where the winter climate is more genial, it stays all the year, roaming about in small parties during the cold weather, and merely shifting its haunts from exposed to sheltered localities according to the severity of the season. In Southern China it is by no means so common as the Chimney-Swallow, and far more locally distributed; but in Formosa, both north and south, it abounds in almost every homestead. Being a resident bird, and not subject to distant migrations, we should naturally expect to find it liable to some variation through its insular position; and this we do observe, in the larger form, longer wings and almost entire absence of the red nuchal collar in our bird. The same facts are observed and indirectly admitted in the variety prevalent in Japan by Professor Schlegel, who was so struck with the differences offered by the Japanese bird as to make it a subspecies under the name of *Hirundo alpestris Japonica*. The variations in the Formosan bird, however, are too trivial to found on them a new species; and were not the triple nomenclature held in such objection by the majority of modern naturalists, we could not do better than employ it in this instance. On taking possession of our native house at Tamsuy, I observed a nest of this Swallow under the rafters in the central hall. It was exteriorly built of specks of mud, like the nests of the Martin, but had a neck-like entrance, giving the whole the form of a French flask flattened against the roof; the inside was amply lined with feathers. Pallas's figure gives a very good idea of its structure; the mouth, however, does not always point upwards, but is adapted in form and direction to the shape of the spot against which it is placed. The pair to which the nest belonged returned at the close of March, and in April began to repair it. Towards the end of the latter month the female was sitting on three white unspotted eggs. The male and female shared the duties of incubation; but the female usually sat for the longest time. For the sake of science we let the birds have it all their own way, though they made a great mess about our small house, and nearly drove us wild with their loud discordant twittering.

"In a ramble one spring morning, at dawn, I saw large numbers of these Swallows perching on some high bamboos. The sun was fast dispelling the thick night-fog that still hung low and heavy, and the birds seemed in high spirits at the return of fine weather. They fluttered from branch to branch, and, as they regained a footing, rocked backwards and forwards before recovering their balance. It was in April, and they were all paired, the male being always distinguishable by his larger size and longer tail. In pairs they sang, or rather twittered, their notes *kee-wee-keé*, like sounds that might be produced by some metal instrument sadly out of tune. The male loudly sang his bar, and the female followed in a lower key; the male then fluttered his wings and began again; the female followed suit. In this manner the whole clump of tall graceful bamboos looked alive with these birds, and resounded with their strange notes. Some pairs would start away and pursue one another, at first with a smooth, skimming flight; then in an excited manner they would stagger along, and, fluttering their wings, sing lustily their notes of love."

In a subsequent note Mr. Swinhoe says the bird is "locally distributed throughout China as far as Peking. In North China it is only a summer visitant; in South China vagrant during winter. Represented in Japan and Formosa by larger varieties."

Crown of the head, back, scapularies, wing-, and upper tail-coverts deep steel-blue, a few of the white bases of the feathers showing at the upper part of the back; line over the eye, and collar at the back of the neck, rich chestnut-red; rump chestnut-red, striated with brown; wings and tail blackish brown, glossed with blue; under surface pale buff, with a conspicuous streak of dark brown down the centre of each feather; under tail-coverts largely tipped with steel-blue; bill black; feet brownish black.

The figures are of the size of life; the sexes do not appear to differ except in the female being smaller than the male.



J. Gould & H.C. Richter del. et lith.

CECROPIS ERYTHROPYGIA.

Walter, Imp.

CECROPIS ERYTHROPYGIA.

Indian Mosque-Swallow.

Hirundo erythropygia, Sykes, Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. 1832, p. 83.—Jerd. Madr. Journ. Lit. and Sci., vol. xi. p. 237.—Blyth, Ibis, 1866, p. 337.

——— *Nipalensis*, Hodgs. Journ. Asiat. Soc. Beng., vol. v. p. 780.

——— *Daurica*, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calc., p. 198.—Jerd. Birds of Ind., vol. i. p. 160.—Horsf. and Moore, Cat. of Birds in Mus. East-India Comp., vol. i. p. 92.

Masjid Ababil, of the Hindoos, *i. e.* Mosque-Swallow.

All the remarks respecting Indian Mosque-Swallows that have from time to time appeared in various scientific periodicals, have reference to this species, originally characterized by Col. Sykes, and differing from its western and eastern allies, *Cecropis rufula* and *C. Daurica*, with which it has often been confounded, in its smaller size, and in the striæ on the breast being intermediate, or not so apparent as in the one nor so faint as in the other—characters by which the bird may be at once distinguished, and which tend to confirm the opinion of those ornithologists who regard it as a distinct species. However narrowly defined may be the range of the other members of the genus *Cecropis*, that of the present bird appears to be a very wide one; for it is said to frequent the whole of India, from the most southern part of the peninsula to the Himalayas, and is, moreover, seen in such countless numbers as to excite the utmost astonishment. Col. Sykes relates that it "appeared in millions in two successive years in the month of March, on the parade-ground at Poona; but they rested a day or two only, and were never seen in the same numbers afterwards." It seems to differ but little in habits and nidification, or in the similarity of the colouring of the sexes, from its immediate congeners. Dr. Jerdon does not say if it be or be not a migrant; in all probability it merely changes from one district to another at opposite seasons, without leaving the country, its movements being influenced by the nature of the season. Mr. Hodgson states that it "is the Common Swallow of the central region of Nepal, a household creature, remaining for seven or eight months of the year;" while Dr. Jerdon informs us that he has seen it nesting in Southern India.

In Horsfield and Moore's 'Catalogue of the Birds in the Museum of the East-India Company,' there is a note (from whose pen is not stated) which I take the liberty of transcribing:—

"This Swallow in general prefers the proximity of jungles. I observed it in those round the Neilgherries (and also on the summit of the hills), in various other parts of the west coast, and in the Carnatic, at the Tapoor pass. In the northern parts of the tableland, however, I have seen it occasionally in the cold weather only, both in the neighbourhood of water and on dry open plains. In the jungles it frequents, it is often seen seated in great numbers on a tree."

In Dr. Jerdon's 'Birds of India,' it is stated that "This Swallow is found all over India, rarely extending to Ceylon; *but* it is more common in hilly or jungly districts than in the open plains. I have seen them in every part of India, from the extreme south to Darjeeling. A few couples, at all events, breed in the South of India; for I have seen their nests on a rock at the Dimhutty waterfall on the Neilgherries, twenty or thirty together. I have found one or two nests in deserted out-houses in Mysore; and they are said to breed very constantly on large buildings, old mosques, pagodas, and such like; hence the native name of Mosque-Swallow, in the South of India; but I rather think there is a considerable increase of their numbers during the cold weather; and it was, no doubt, at the period of their northward migration that Col. Sykes saw them in such vast numbers at Poona. From Hodgson's remarks I conclude that they breed in Nepaul; and Adams says that they breed in the North-west Himalayas, migrating in winter to the Punjab. It constructs a spherical or oval-shaped mud nest, with a long neck or tubular entrance, of the kind which is called a retort nest; and the eggs are white, faintly marked with rusty-coloured spots. The bird may often be seen seated on trees in great numbers. Mr. Elliot says (taking, I imagine, a native idea), "It flies after insects, and, when its mouth is full, sits on a tree to devour them."

Crown of the head, back, scapularies, wing, and upper tail-coverts glossy steel-blue, a few of the white bases of the feathers showing on the upper part of the back; wings deep brown, glossed with steel-blue on the tips of the inner webs; stripe over the eye, collar round the back of the neck, and the rump deep rusty red; tail deep brown, the central feathers glossed with steel-blue; throat, under surface of the body, and under wing-coverts creamy white, with a narrow line of dark brown down the centre of each feather; under tail-coverts tipped with bluish black, greatly increasing in extent on those nearest the tail; bill black; feet brownish black. In some specimens the red of the rump is much paler than in others, and fades off into creamy white towards the tail-coverts.

In outward appearance the sexes are alike; but the female is somewhat smaller than the male.

The Plate represents the two sexes, of the natural size.



CECROPIS HYPERYTHRA.

J.Gould & H.C.Richter del. et lith.

Walter Imp.

CECROPIS HYPERYTHRA.

Ceylonese Mosque-Swallow.

Hirundo hyperythra, Layard, Blyth, Journ. Asiat. Soc. Beng., vol. xviii. p. 814.—Id. Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 198.—Layard in Ann. and Mag. Nat. Hist., sec. ser. vol. xii. 1853, p. 170.—Blyth, Ibis, 1867, p. 306.

However closely allied the *Cecropis rufula*, *C. Daurica*, and *C. erythropygia* may be, the present bird possesses some very tangible specific characters by which it may at once be distinguished from either of them. The most prominent of these are the absence of the rufous superciliary stripe and nuchal band, the deep ferruginous chestnut hue of the entire under surface and rump, and the striæ which pervade the breasts of all the Mosque-Swallows being in this instance exceedingly narrow and hair-like. That a bird with such distinguishing characters should be tolerably common in Ceylon, and yet never be found in the contiguous parts of India, would excite extreme surprise, did we not find similar instances to occur in other countries: thus the fact that the Crested Lark, so common at Calais, is scarcely ever seen at Dover, and *vice versâ* with regard to the Common Wagtail, may be cited as cases in point. So far as we yet know, the *C. hyperythra* is stationary, while, on the other hand, it is well ascertained that at least two or three other Asiatic species are strictly migratory. It would be as much out of place to go into the subject of migration in the present paper, as it would be impossible to divine why the *C. Daurica* is a summer visitant only in Northern China, and the *C. rufula* in the Holy Land, why the intermediate species *C. erythropygia* never leaves India, or the present species the beautiful island in which it is found; we may speculate upon these points, but we shall be unable to prove anything respecting them.

I regret to say that the following brief notes from the pens of Mr. E. L. Layard and Mr. Blyth comprise all the information respecting this species.

"I first discovered this species," says the former gentleman, "In November 1849, at Ambepusse, on the road to Kandy. I have since seen it at Putlam, up the central road as far as the hills extend, at Ambegamoa, and up the Caltura river from Perth sugar-estate to Ratnapoora and Adam's Peak. It breeds in caverns and under bridges, and builds a nest of mud attached to the roof. The general shape and size is that of a small basin, with a round entrance-hole at the top. The lining is composed of fine hay and feathers; and the eggs are laid in March. The late Dr. Gardner informed me that a pair built their nest on a ring supporting a hanging lamp nightly used in his sitting-room. They securely hatched their eggs, unscared by the cleaning or lighting of the lamp; and the young birds returned to the nest every night for about a month after being fully fledged."

Mr. Blyth remarks that this species resembles *C. erythropygia*, but has the entire under parts and the ear-coverts of the same deep ferruginous hue as the rump, which is deeper in tint than that of *C. erythropygia*; the mesial streaks of the feathers of the lower parts are also less developed. It is permanently resident in the mountainous parts of the island of Ceylon.

It seems probable that this is the only species of the genus *Cecropis* found in Ceylon; but a second may occasionally occur there; for Mr. Layard mentions, under the head of *Hirundo Daurica*, that he found one of these birds in the village of St. Pedro, in December, which had probably been driven over from the opposite coast by stress of weather, and was hawking about the street. He fired at and wounded it, but it flew away. The next day it appeared again in the same place, when he succeeded in killing it, and found that the shot of the previous day had broken one of its legs. I have no doubt that this was not a *C. Daurica*, as Mr. Layard supposes, but a *C. erythropygia*.

Head, neck, back, wing-coverts, and upper and tips of the under tail-coverts deep steel-blue; wings and tail brownish black, glossed with steel-blue; throat, under surface of the body, axillaries, and under wing-coverts deep chestnut, with a very fine hair-like line of dark brown down the centre of each feather; rump deep chestnut, without striæ; under tail-coverts bluish black; bill black; feet brownish black.

The Plate represents the two sexes, of the natural size.



DELICHON NIPALENSIS.

J. Gould & H.C. Richter del. et lith.

Walter Imp.

DELICHON NIPALENSIS.

Nepaul Martin.

Delichon Nipalensis, Hodgs., Moore in Proc. of Zool. Soc., part xxii. (1854) pl. lxiii.—Horsf. and Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. i. p. 384.
Chelidon Nipalensis, Jerd. Birds of India, vol. i. p. 168.

"This pretty little Martin," says Dr. Jerdon, "was only sent by Mr. Hodgson in 1853, from Nepaul. I procured it at Darjeeling, at about 4500 feet of elevation, in the valley of the Rungnoo, near the mineral springs. I found it flying over the jungles in large flocks, towards the close of the rains and during the cold weather." Mr. Moore remarks that it "differs from the type of the genus *Chelidon* in its smaller and more robust bill, in its shorter wings, and in its short and nearly even tail; from *Cotyle* it is at once distinguished by its plumed feet."

The above is, I believe, all the information that has been recorded respecting this singular and beautiful little Martin, of which there are several specimens in the British Museum, and one in my own, for which I am indebted to Dr. Jerdon. The only difference I have observed in the plumage of the specimens that have come under my inspection is, that the black colouring of the throat appears to be inconstant, some of those in the national collection having that part interspersed with white.

I quite agree with Mr. Moore in the propriety of separating this bird from *Chelidon*, if I do not in the anagrammatic character of the name he has proposed as a generic appellation; but as Dr. Leach's transposition of the letters forming the word *Alcedo* into *Dacelo* among the Kingfishers has been admitted, why should not that of *Chelidon* into *Delichon* be also allowed among the Swallows?

As the native country of the Nepaul Martin becomes more known to ornithologists, we may hope to acquire a detailed account of its habits, actions, and economy, all of which, I apprehend, will prove to be somewhat peculiar.

Head, neck, back, chin, and lesser wing-coverts glossy bluish black; wings brownish black; breast, abdomen, and a band across the rump white; upper parts of the flanks black; tail black, glossed with blue on the edges of the feathers; under tail-coverts bluish black; bill black; feet brownish black.

The figures are of the size of life.



HYPUROLEPIS DOMICOLA.

J.Gould & H.C.Richter del. et lith.

Walter Imp.

HYPUROLEPIS DOMICOLA.

Bungalow-Swallow.

Hirundo domicola, Jerd. Madr. Journ. of Lit. and Sci., vol. xiii. p. 173.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 198.—Jerd. Birds of Ind, vol. i. p. 158.—Horsf. and Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. i. p. 384.—Bulg. in Proc. of Zool. Soc., 1866, p. 568.—Moore in Proc. of Zool. Soc., part xxii. (1854) p. 264.—Mottl and Sclat. in Proc. of Zool. Soc., 1863, p. 217.—Blyth in Ibis, 1866, p. 336.

The Bungalow-Swallow of India, and the bird (from the Feejee Islands) described by me, in the 'Proceedings of the Zoological Society of London' for 1856, as *Hirundo subfusca*, constitute a well-marked division of the *Hirundinidæ*, for which Lesson's generic appellation of *Herse* would have been adopted; but that term having been previously employed, I propose in lieu of it that of *Hypurolepis*. The two birds above mentioned differ from most of the Swallows, and particularly from the members of the genera *Hirundo* and *Cecropis*, in the breadth of the bill, in the compact form of the body, and in the shortness of the tail. I conceive that the Australian Welcome Swallow, *Hirundo neoxena*, should also be placed in this genus, an opinion which is strengthened by the absence of any thoracic band, and the presence of spots on the under tail-coverts.

It is much to be regretted that but little information respecting the range, habits, and economy of *H. domicola* has been recorded by the various writers on ornithology. My own collection contains two examples, one kindly forwarded to me from India by Dr. Jerdon; the other was obtained by Mr. Wallace in the island of Lombock. It would be interesting to know if these are the extreme limits of the range of the species north and south, and if the intermediate countries are favoured with its presence. It would perhaps be an error to say that the sexes are alike in their plumage and marking; yet, judging from the specimens above mentioned, I think it likely that such is the case.

"Hitherto," says Mr. Jerdon, "I have only procured this little species on the Neilgherries, nor has it been noticed in any other part of India; but in passing hurriedly through Bangalore I saw some Swallows flying about, which I believe to have been of this species, and some nests in a verandah of a house there, which must, I think, have also belonged to this bird. It is also found in Ceylon, at Penang and other parts of Malayana, extending to Java. I found it breeding at Ootacamond, chiefly in deserted bungalows and outhouses, and also at the Government wooden bungalow at the Avalanche. The nest was small, open at the top, and profusely lined with feathers: the eggs were white, spotted with reddish brown, and two or three in number. It also breeds in houses at Newera Elia in Ceylon."

Captain Bulger states that he found this species "tolerably abundant at Wellington in the Neilgherry hills, at about 6000 feet above the sea-level, in April and May 1866."

The late Mr. Mottley records that this bird was brought to him by his hunter from the Dyak in Borneo.

Forehead, chin, throat, and upper part of the breast chestnut-red; remainder of the head, back of the neck, back, lesser wing-coverts, scapularies, and upper tail-coverts deep steel-blue; wings black, slightly tinged with blue; tail the same, with a mark of white on the inner web, and near the tip, of all but the two centre feathers; under surface light brown, the feathers on the centre of the abdomen with paler tips; under tail-coverts black, tipped with dull white; bill black; feet brownish black.

I may remark that but for the slight prolongation of the outer feather on each side, the tail of this bird might be described as square.

The figures are of the natural size.



J.Gould & H.C.Richter, del. et lith.

LAGENOPLASTES FLUVICOLA.

Walter Imp.

LAGENOPLASTES FLUVICOLA.

Indian Cliff-Swallow.

Hirundo fluvicola, Jerd. Birds of Ind., vol. i. p. 161.—Blyth, Journ. Asiat. Soc. Beng., 1855, p. 470.—Blanf. in Ibis, 1867, p. 462.
Cotyle —— ? Adams in Proc. of Zool. Soc., 1859, p. 176. no. 58*.
Lagenoplastes empusa, Gould, MS.—Blyth in Ibis, 1866, p. 337.

As not one in twenty of the collections of birds made in India contains an example of this pretty little Swallow, we may reasonably infer that it is extremely rare or very local in its habitat. It appears to have been unknown to Colonel Sykes and Captain Burgess, and even to Mr. Blyth. Of the three specimens now before me, one was obtained by Captain Julian at Kangra in the Punjab, another was kindly sent to me by Dr. Jerdon, and the third was procured by Mr. W. T. Blanford at Nagpoor. It is doubtless the bird described by Dr. Leith Adams as inhabiting Cashmere. In size, and in many of its habits, particularly its mode of nidification, it so closely resembles the *Lagenoplastes Ariel* of Australia, that I have no hesitation in regarding it as a second species of that genus. Both these Swallows live in societies, and the individuals of each breed in close contiguity. The bottle-shaped nests, represented in the plate, have been figured from description, and not from real nests; but, having had ample opportunities of observing the nidification of the antipodean species, I believe that they are not very far wrong.

Some little diversity occurs in the three Indian examples above mentioned,—one having an obscure greyish white spot on the inner web of the external feather, and a still fainter one on the next; two have the red crown striated, while in the third the striæ are obsolete: these may be sexual differences only.

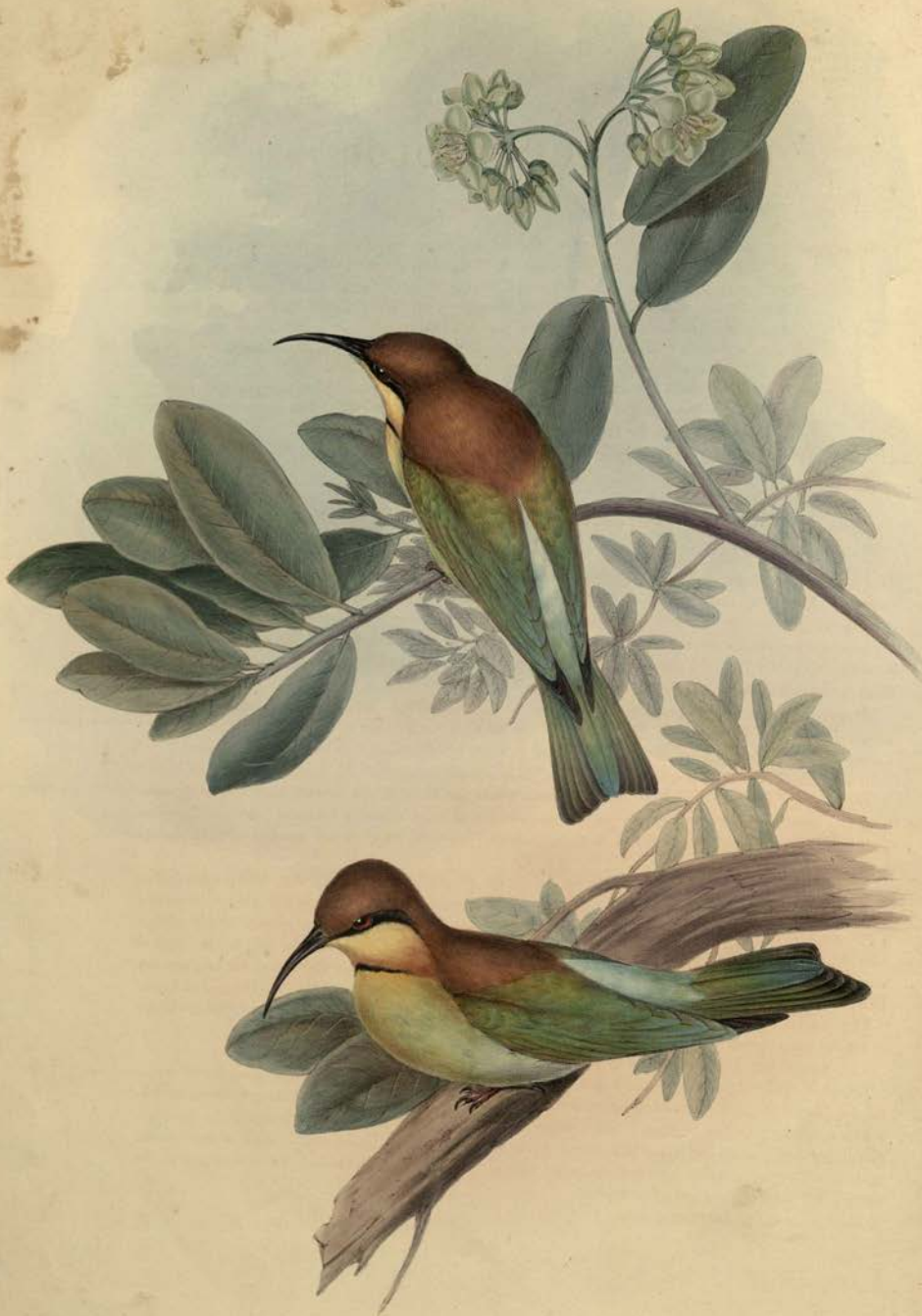
"I first met with this species," says Mr. Jerdon, "near the rivers Sonar and Ken in Bundelkund, breeding in company on the rocky cliffs overhanging the water; I afterwards found it in one or two localities not very far from Saugor,—on the Nerbudda, near Jubbulpore,—and also on the Wurdu river, not far from Chanda. It had not, I believe, been previously noticed by any observer, is both rare and local in its haunts, and occurs only in small numbers. In several of their breeding-places, probably as many as fifty or sixty of their retort-shaped nests were crowded close together. When I first discovered them (towards the end of April or the beginning of May), the birds were busily engaged in breeding; but I could not get at the nests to procure any of their eggs."

"I thrice saw colonies of *Hirundo fluvicola*, Jerdon," writes Mr. W. T. Blanford in the 'Ibis' for 1867; "but it is a rare bird. The nests were in every case massed together, as described by Dr. Jerdon in his 'Birds of India,' beneath an overhanging bank, below which was deep water. My friend Mr. Fedden, who was with me in the same district, told me that he met with a colony beneath a waterfall on the Pem Gunga river, and the birds flew in and out of their nests through the spray. In every case the nests were in places which would be covered by the river during the wet season. I was told by the natives that the birds keep about the same spot, and return again to their former nesting-place after the rains. This is highly probable; for one of the localities was on the Wurdu river, west of Chanda, mentioned by Dr. Jerdon. The birds appear never to go very far from their nests, and generally keep close to the river, beating for about half a mile or so up and down, not, however, keeping to the river-bed itself. The eggs are white, sparingly spotted with claret-colour or nearly pure white. I suspect the birds have two broods in a year—one in February, the other in April. I found many young birds in the nests at the beginning of March; while in April there were eggs in the nests, and the young of the first brood, differing very little from their parents, were flying about."

"A small striated Swallow," says Dr. Leith Adams, "is common on the lakes and streams in the Vale of Cashmere during the summer months, and likewise in the Punjab at certain seasons. Crown rufous, speckled with narrow black lines; back glossy black; wings bluish black; rump inclining to white; tail black, slightly forked; throat and breast white, with numerous black lines; belly and vent white, with the black lines more sparingly dispersed; tarsus naked; inner surface of wing brownish black."

Crown of the head rufous; back and scapularies deep steely black, some of the feathers of the former edged with white; wings and tail brown; feathers of the lower part of the back and upper tail-coverts brown, becoming paler at the tips; under surface white; chin, throat, breast, and flanks streaked with brown; under surface of the wing pale brown; bill black; feet blackish brown.

The figures on the opposite Plate are of the size of life.



MEROPS QUINTICOLOR, *Vaill.*

MEROPS QUINTICOLOR, *Vieill.*

Pirik Bee-eater.

Merops quinticolor, Vieill. Nouv. Dict. d'Hist. Nat. 2de édit. tom. xiv. p. 20.—Ib. Ency. Méth. Orn. part i. p. 391.—Le Vaill. Hist. des Guép. pl. 15.—Gray and Mitch. Gen. of Birds, vol. i. p. 86, *Merops*, sp. 11.—Gray, List of Birds in Coll. Brit. Mus. part ii. sec. i. p. 70.—Jerd. Madras Journ. Lit. and Sci. vol. xi. p. 229.—Bonap. Consp. Gen. Av. p. 163, *Merops*, sp. 15.—Horsf. Cat. of Birds in Mus. East Ind. Comp. p. 88.—Moore, in Proc. of Zool. Soc. part xxii. 1854, p. 264.—Gray, Cat. of Spec. and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 57.—Kelaart, Prod. Faun. Zeyl. p. 99.—Layard, Ann. and Mag. Nat. Hist. 2nd ser. vol. xii. p. 174.

——— *urica*, Horsf. Linn. Trans. vol. xiii. p. 172.—Swains. Zool. Ill. pl. 8.—Less. Man. d'Orn. tom. ii. p. 86.

——— *Leschenaulti*, Vieill. Nouv. Dict. d'Hist. Nat. tom. xiv. p. 18.—Ib. Ency. Méth. Orn. part i. p. 391. pl. 239. fig. 3.—Le Vaill. Hist. des Guép. pl. 18.—Less. Traité d'Orn. p. 238.

——— *erythrocephalus*, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 53.

Pirik, of the Javanese.

This species, as its name implies, is conspicuous for the varied tints of its colouring; and if it be less elegant in form than some others of the Indian Bee-eaters, the greater beauty of its plumage is an ample compensation for any deficiency in that respect.

I have not as yet seen examples of this bird from the western parts of India, and Mr. Blyth states that it does not visit Lower Bengal: with these exceptions, it may be said to be universally dispersed over that great country, the Island of Ceylon, and Java.

Mr. Jerdon states that he procured a specimen "at the foot of the Coonoor Pass, in dense jungle, and another in an open forest on the Malabar coast. It pursued insects from a fixed perch, returning after having catched one; was generally observed seated on a low bough, solitary, or two or three together."

In Dr. Kelaart's "Prodromus Faunæ Zeylanicæ," it is remarked that the "*M. quinticolor*, so like *M. viridis*, is found in the north and north-eastern provinces, where the latter is the species most frequently seen. It is very amusing to see these birds perched on branches of trees watching for small insects. They are sometimes seen in small flocks of six or eight, searching for food, which chiefly consists of coleopterous insects."

Mr. Layard informs us in his interesting "Notes on the Ornithology of Ceylon," that "the present species affects the hilly forest region. Here it pursues its insect prey among the lofty tree-tops, seldom descending to the ground, except in the breeding season, when it frequents steep banks for the purpose of providing a suitable habitation for its young; this is generally effected by scooping a hole in the soil, to the depth of about eighteen inches, terminating in a domed chamber, in which the young are hatched on the bare ground. The eggs, two in number, resemble those of the Kingfisher in shape and colour; they are hatched in April."

This species is also included in the list of Malayan birds collected by Dr. Theodore Cantor, and presented by him to the Museum of the Honourable East India Company.

The sexes are so very similar that by dissection alone can they be distinguished with certainty.

Crown of the head, back of the neck and shoulders dark chestnut-red; lores and line beneath and behind the eye black; chin yellow, passing into chestnut on the lower part of the neck, and abruptly terminated by a narrow transverse line of black; wings yellowish green, with a wash of orange-brown along the edge; primaries black; rump and upper tail-coverts verditer blue; tail dark green, with a wash of blue on the central tail-feathers; under surface light green washed with yellow on the breast, and with orange on the flanks; bill black; irides red; feet brown.

The figures are of the natural size.



MEROPS VIRIDIS, Linn.

MEROPS VIRIDIS, *Linn.*

Hurrial Bee-eater.

Merops viridis, Linn. Syst. Nat., tom. i. p. 182.—Lath. Ind. Orn., tom. i. p. 269.—Vieill. Ency. Méth. Orn., part i. p. 273. pl. 105. fig. 3.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 53.—Sykes, in Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. p. 82.—Gray and Mitch. Gen. of Birds, vol. i. p. 86, *Merops*, sp. 10.—Ib. Cat. of Birds in Coll. Brit. Mus., part ii. sec. 1. p. 69.—Gray, Cat. of Spec. and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 58.—Bonap. Consp. Gen. Av., p. 162, *Merops*, sp. 11.—Horsf. Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 84.—Layard, Ann. and Mag. Nat. Hist., vol. xii. 2nd ser. p. 173.

Apiaster Madagascariensis torquatus, Briss. Orn., tom. iv. p. 549. pl. xlii. fig. 2.

——— *Philippensis minor*, Briss. Orn., tom. iv. p. 555. pl. xliii. fig. 2?

Guêpier à collier de Madagascar, Buff. Pl. Enl. 740.

Guêpier à gorge bleue, Buff. Hist. Nat. des Ois., tom. vi. p. 497.

The Indian Bee-eater, Edw. Nat. Hist. of Birds, part. iv. p. and pl. 183.

Indian Bee-eater, Lath. Gen. Syn. Supp., vol. ii. p. 672.—Penn. Gen. of Birds, pp. 16, 62. pl. vii.—Shaw, Gen. Zool., vol. viii. p. 156.—Lath. Gen. Hist., vol. iv. p. 122.

Merops Lamarcki, Cuv. Règn. Anim. 1829, tom. i. p. 442

——— *Orientalis*, Lath. Gen. Hist., vol. iv. p. 134?

——— *Coromandus*, Lath. Gen. Hist., vol. iv. p. 135.

——— *Indicus*, Jerd. Journ. of Lit. and Sci., vol. xi. p. 227.—Blyth, Ann. and Mag. Nat. Hist., vol. xii. p. 93.

——— *torquatus*, Hodgs., Gray, Zool. Misc. 1844, p. 82.

——— *ferrugineiceps*, Ib. p. 82.

Le Guêpier à gorge bleue, ou *Le Guêpier Lamarck*, Levaill. Hist. Nat. des Guêp., t. 10.

Le Guêpier jaune, de la côte de Coromandel, Sonn. Voy., ii. p. 213. pl. 119?

Hurrial and *Putringa*, Hindoos, Jerdon.

Bans-puttur ("Bamboo-leaf"), Hindoos, Blyth, Dr. F. B. Hamilton.

Monagyee, Aracans, Blyth.

Putinga, Capt. Boys.

This species of Bee-eater enjoys a far wider range of habitat than any other member of the family with which I am acquainted. I have at this moment before me specimens from nearly every part of the Peninsula of India, from the Himalayas to Cape Comorin, and others from the island of Ceylon; the Zoological Society of London possesses a specimen from the Mauritius, which so closely accords with those from India, that I cannot consider it to be different; Dr. Rüppell includes it in his 'List of the Birds of North-Eastern Africa,' and, as will be seen in the synonyms given above, Buffon figures it as a bird of Madagascar, from which country, however, I have not myself as yet seen an example. Specimens from all these countries closely agree in size and in their general admeasurements, but those from very distant localities offer some slight differences in the colouring of their plumage: for instance, specimens from Nepaul have the crown of the head and the back of the neck more strongly washed with reddish-brown than others from the more southern parts of the Continent; in like manner, specimens from Egypt accord with Indian ones in size, but have the filamentous portion of the central tail-feathers longer, and no trace of the blue on the throat,—that part being of the same rich golden-green as the head, a hue which also pervades the upper part of the tail.

Although so generally dispersed over India, the bird seems to be subject to the law of migration, or at least, to a change of residence, according as circumstances may be favourable to the production of the requisite supply of food; hence in Scinde, during the hot months of summer, when the vegetation is parched up and insect life all but absent, the bird is not to be found in that country. In a note on Scindian birds addressed to me by my son, Dr. Gould, dated Ghiznee, October 1854, he says, "The monsoon being now over, birds are beginning to return, and Bee-eaters, Shrikes, Hoopoes, Stone-chats, Wheat-ears, Willow-wrens, and many other species are now appearing amongst the rocks, where a month since nothing but a lark was to be seen; and Terns, which could only be found at sea, now come wandering over the land and hunting up and down in search of dragon-flies and other insects, which are now numerous."

"This bird," says Mr. Blyth, "is extremely common, but disappears in the rainy season. It breeds in the neighbourhood of Calcutta, as I have had specimens brought me with eggs ready to lay, in the month of March. The general habits of this bird are those of a Fly-catcher, but it frequently hawks for insects on the wing, many together, like swallows."

Mr. Jerdon states, that "This well-known and common bird is spread in numbers over all India. It

generally hunts, like the true Fly-catcher, from a fixed station, which is either on the top or upper branch of a high tree, or on the branch of a shrub or hedge, a bare pole, a stalk of grain or grass, or some old building. Here it sits looking eagerly around, and on spying an insect, which it can do a long way off, captures it on the wing with a distinct snap of its bill, and then returns to its perch, generally sailing slowly with outspread wings, the coppery burnishing of its head and wings shining conspicuously in the sun-beams. Sometimes it hunts alone, at others in small parties, seated near each other. Frequently it captures one or two insects before it returns to its perch; and in the morning and evening considerable numbers are often seen, sometimes in company with swallows, hawking actively about. The Bee-eater also often changes its perch, taking up a fresh one at some distance. It has a peculiar, loud, yet rather pleasant whistling note, which it often repeats in the morning and evening when gathered together. In the bare table-land it generally retires to some secluded and jungly district for the purpose of breeding, which it is said to do in holes in ravines. It sometimes picks an insect off the ground, or off a flower or branch. I have often seen this bird collect towards sunset in small parties on a road, and roll themselves about in the sand and dust, evidently with great pleasure."

From Dr. Horsfield's valuable 'Catalogue of the Birds in the Museum of the East India Company,' we learn that "Mr. C. W. Smith, in his MS. notes, says, 'Their time of incubation is the month of June; and for months after they are hatched, the whole brood congregate, and swim about with the swiftest and most entire movements through the air, making short dips, and returning to the topmost twig from which they took flight: during these evolutions, they are busily employed in snapping up the insects.'"

Mr. Pearson informs us that "The Green Bee-eater has the power of gliding along for some distance without closing its wings, so that its flight consists of two parts,—a rapid commencement, in which the wings flap rapidly; and a quick glide, with the wings and tail fully expanded. Its motion, especially in this latter position, is extremely elegant."

I find a figure of this species among the drawings of the late Hon. F. J. Shore, and the following brief remarks among the accompanying notes:—

"The sexes are alike: the young are all dull green: some have the forehead gilded.

"Common from Calcutta to the Himalayas, and in the Sagur and Nurbudda territories. Killed at Allahabad, Mar. 19, 1832."

Captain R. C. Tytler remarks that the little green *Merops viridis* is very common at Barrackpore.

The following notice of this bird occurs in the MS. of Capt. Boys:—

"The beauty of the plumage of this lively and active little bird tends much to enliven an Indian scene. It darts with celerity on any passing insect, and returns with its captive to the twig whence it started, and which in the earlier parts of the morning is usually on the sunny side of some tall shrub or tree, and on the shady side during the heat of the day. Its note is monotonous, between a chirp and a twitter, and only emitted while the bird is on the wing. It is common all over the eastern parts of India, and as low down as Sultanpore, where I shot examples at the end of September 1841. I have not seen it at Shirkarpore, and only as low down the Indus as Gothku. I observed it to be numerous at Ferozepore in May 1846."

And lastly, Mr. Layard, in his 'Notes on the Ornithology of Ceylon,' informs us that there, "This species is confined to the open plains of the maritime districts. I have seen it at Trincomalee and Hambantotte, and traced it from Chilau to Mulletivoe. I am not aware if it be found near Columbo or in the interior, where the *M. Philippinus* and *M. quinticolor* appear to replace it.

"It delights in the neighbourhood of water, over which it hunts for insects. I have even seen it take them from off the surface, which it has struck with its breast in the endeavour. It is a much bolder bird than either of the other two, often allowing of approach within a few feet before seeking its safety in flight.

"*Merops viridis* roosts in large flocks, always returning to the same tree for successive months, and usually retires before five o'clock in the evening, whereas *M. Philippinus* flies till dark."

Head, upper surface and wings green, with a wash of golden-brown on the crown and the back of the neck; primaries and secondaries rufous, washed with green on the outer webs and tipped with brownish-black; tertiaries green; under surface of the wing fawn-colour; lores and ear-coverts black; under surface grass-green, with a wash of blue on the throat and a conspicuous streak of black, ending in a point on each side, across the chest; tail green, the lateral feathers margined internally with ashy; all with dark shafts, and the elongated portion of the two central feathers black; irides crimson; bill black; feet purplish-grey.

The sexes offer no perceptible difference in their colouring, but the young differ in being destitute of the filamentous prolongations of the middle tail-feathers.

The foremost figure in the Plate is of the natural size, the other is a little reduced.



MEROPS PHILIPPINUS, *Linn.*

J. Gould. and H.C. Richter. del. & lith.

Hullmandel & Walton Imp.

MEROPS PHILIPPINUS, *Linn.*

Philippine Bee-eater.

Merops Philippinus, Linn. Syst. Nat., tom. i. p. 183.—Ib. Gmel. Edit., tom. i. p. 461.—Lath. Ind. Orn., tom. i. p. 271.—Vieill. Ency. Méth. Orn., part i. p. 275.—Gray, Cat. of Birds in Coll. Brit. Mus., part ii. sec. 1. p. 69.—Ib., Cat. of Spec. and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 57.—Jerdon, in Madras Journ. of Lit. and Sci., vol. xi. p. 228.—Blyth, Cat. of Birds in Mus. Asiat. Soc. of Calcutta, p. 52.—Horsf. Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 86.—Layard, Ann. and Mag. Nat. Hist., vol. xii. 2nd ser. p. 173.

Apiaster philippensis minor, Briss. Orn., tom. iv. p. 560. pl. xliii. fig. 1.

Grand Guêpier des Philippines, Buff. Pl. Enl. 57.

Guêpier vert à queue d'azur, Buff. Hist. Nat. des Ois., tom. vi. p. 404.

Philippine Bee-eater, Lath. Gen. Syn., vol. ii. p. 674.—Shaw, Gen. Zool, vol. viii. p. 165.—Lath. Gen. Hist., vol. iv. p. 129.

Merops Daudini, Cuv. Règn. Anim. (1829) tom. i. p. 442.

——— *typicus*, Hodgs., Gray, Zool. Misc. (1844) p. 82.

——— *Javanicus*, Horsf. Trans. Linn. Soc., vol. xiii. p. 171.—Raffles, Trans. Linn. Soc., vol. xiii. p. 294.—Gray and Mitch. Gen. of Birds, vol. i. p. 86, *Merops*, sp. 9.—Bonap. Consp. Gen. Av., p. 162, *Merops*, sp. 14.

Javan Bee-eater, Lath. Gen. Hist., vol. iv. p. 132.

Kachangan, Javanese, Horsfield.

Biri-biri or *Barai-barai*, Sumatrans, Raffles.

Berray-berray, Malays, Eyton.

Boro-putringa, Hindoos, Dr. F. B. Hamilton.

Bans-putter, Bengalese, Ib.

Putrainga, Capt. Boys.

Kattalan cooroovi, Mal.; lit. "Aloe Bird," (from a fanciful resemblance in the tail of the bird to the aloe plant) Layard.

This species of Bee-eater, although less common than the Hurrial (*Merops viridis*), is nevertheless very generally dispersed over the Continent of India, with the exception of Scinde and the North-Western provinces, where I believe it is seldom and perhaps never seen; in the Madras Presidency and Ceylon it is very common, and in Tenasserim and the Malay countries generally, it is still more numerous; most of the collections from Singapore contain examples; it is also found in Java and Sumatra, and, as its name implies, in the Philippines. It is a very fine and elegantly formed species, and if its markings be less strongly defined than in some other members of the genus, it must still be one of the most showy and attractive birds of its native forests, particularly when seen in such numbers as are mentioned by Mr. Jerdon in the following note, which, as well as the others I have taken the liberty of transcribing, I have thought it but right to give in the words of the respective writers.

"This bird," says Mr. Jerdon, "prefers a well-wooded country, and I have seen it in Goomsoor in open parts of the jungle, and on the west coast occasionally in similar situations. It is almost always found in small parties seated on the tops of high trees, frequently among wet paddy-fields, and in general, perhaps, making a much longer circuit than the *M. viridis*, capturing several insects before returning to its perch. I have on one or two occasions seen it perched on a low palisade overhanging some water, and every now and then picking an insect off the surface. I once saw an immense flock of them at Caroor, in the Carnatic (Coimbatoor district), and in the beginning of March there were many thousands of them perched on the lofty trees lining the road there, which sallied forth for half-an-hour or so, making a great circuit before returning. These birds were most probably those which had been spread over great part of that country, now collected to migrate into a more wooded region during the approaching hot season, when insect life is scarce. Like the *M. viridis*, this has a loud and pleasing sort of whistle, but more full and mellow."

"I first observed this bird," states Capt. Boys, "at Mandoo in Malwa, in the month of May 1837; since then I have seen it at Cawnpore, Sultanpore and at Ferozepore, where, on the 17th of May 1846, I killed

three at one shot, which, evidently tired from their transit, were packed close to each other on a prominent twig of a mimosa, in the compound of my garden. This bird builds in holes of steep banks near rivers. At Cawnpore it has taken possession of a steep bank, in the face of which it has perforated numerous holes. It flies exceedingly high, and frequently utters a little *chiruk-chiruk*. It goes forth of a morning and returns to these holes at night in great numbers, but does not fly in flocks, though many may be observed in the air at one time."

Mr. Layard, in his 'Notes on the Ornithology of Ceylon,' informs us that "this Bee-eater is very common throughout the island during the period of its visitation; it is the harbinger of the Snipe, and appears about the middle of September.

"It frequents open fields, perching on fences, or on the tops of low bushes, always choosing a dry projecting twig from which to dart at any insect that may pass by, returning with an elegant sailing flight; before the prey is devoured it is beaten against the perch till sufficiently broken to be swallowed entire. In the evening it frequently pursues insects after the manner of swallows, uttering the while a pleasing chirruping note, and soaring to a great height in the air."

Capt. R. C. Tytler mentions that at Barrackpore, it "is a well-known cold weather visitor, and is less common than the *M. viridis*."

Mr. Blyth has "been informed that *M. Philippinus* may occasionally be seen in the vicinity of Calcutta, but is rare."

A figure of this species occurs among the drawings of the late Hon. F. J. Shore, with the following note: "Futtehgurh, Oct. 11, 1833.—Does not appear to be near so common as *M. viridis*. The colours vary in every light between blue, green, bronzed, gilded, &c."

Latham mentions that "it is sometimes caught alive, and that attempts have been made to keep it in cages; but it seldom survives long, as it feeds only on the wing and on living insects."

Head, neck, back and wing-coverts coppery-green; lores, stripe beneath the eye and ear-coverts black, bounded above, from the nostrils to the centre of the eye, by a narrow streak of verditer-blue, and below by a broader streak of blue; rump and upper tail-coverts greenish-blue; primaries dark brown, margined externally with coppery-green at the base and blue-green towards the end, and tipped with brownish-black; secondaries rufous, margined externally with coppery-green and tipped with brownish-black; tertiaries bluish-green; tail bluish-green with brownish-black shafts, the elongated portion of the two central feathers black; chin yellow; throat deep chestnut; sides of the neck and breast coppery-green, gradually passing into grass-green on the abdomen, which again passes into pale blue on the vent and under tail-coverts; under surface of the wing deep fawn-colour; irides deep red; bill black; feet purplish-black.

So little difference occurs in the outward appearance of the sexes, that I question if actual dissection must not be resorted to, to distinguish the one from the other.

The figures are of the natural size.



NYCTIORNIS ATHERTONI.

NYCTIORNIS ATHERTONI.

Blue-throated Nyctiornis.

Merops Athertoni, Jard. and Selb. Ill. Orn., vol. ii. pl. 58.
Nyctiornis cæruleus, Swains. Class. of Birds, vol. ii. p. 333.
———— *Amherstiana*, Royle, Ill. Him. Bot., vol. i. p. lxxvii.
Bucia Nipalensis, Hodgs., Journ. Asiat. Soc., vol. v. p. 360.
Alcemerops paleazureus, Less.
Merops? cyanogularis, Jerd. in Madras Journ. Lit. and Sc., vol. ii. p. 229.
———— *Assamensis*, McClell.
Nyctiornis Athertoni, McClell. in Proc. Zool. Soc., Part VII. p. 155.—Ann. Nat. Hist., vol. vi. p. 450.—Gray and Mitch. Gen. of Birds, vol. i. p. 87.—Cat. of Spec. and Draw. of Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 58.
Alcemerops Athertonii, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 52.
Bucia Athertoni, Blyth in Journ. Asiat. Soc. Beng., vol. x. p. 922.
Napophila Athertoni, Blyth in Journ. Asiat. Soc. Beng., vol. xi. p. 104.

The fine bird forming the subject of the present memoir was first described and figured in the "Ornithological Illustrations" of Messrs. Jardine and Selby, who assigned to it the specific appellation of *Athertoni*, as a tribute justly due to the memory of the late Lieut. J. Atherton, of the 13th Light Dragoons, for his exertions in the cause of Ornithological science. According to the Notes of this gentleman, it inhabits the interior of India, and feeds by night, at which time it is very noisy, frequently repeating the short cry of *curr-curr*. These nocturnal habits are, however, somewhat problematical, as neither Mr. Hodgson, Capt. Boys, nor any other observer with whose notes I am acquainted, make mention of them. The parts of Asia most frequented by the *Nyctiornis Athertoni*, are the warmer and temperate portions of Northern India, the countries of Deyra Doon, Nepaul, Assam and Aracan: Mr. Blyth states that it is also found in Tenasserim and Southern India, from which latter country, however, I have never seen examples. Every account states that it inhabits the dense jungles, and justifies the conclusion that it is very solitary in its habits, which, moreover, appear to be very similar to those of the Trogons. Mr. Hodgson, in his Notes on this species in the "Journal of the Asiatic Society of Bengal," speaking of the bird in the plural, says they "are of rare occurrence, and are solitary woodlanders;" they "are found in the lower and central regions of Nepaul, but seldom or never in the northern. The Nepaulese call them *Bukay-chera*; *chera* being merely a corruption of *chiria*, or bird.

"These birds feed principally on bees and their congeners, but they likewise consume great quantities of scarabæi and their like. They are of dull staid manners, and never quit the deepest recesses of the forest.

"In the Raja's shooting excursions, they are frequently taken alive by the clamorous multitude of sportsmen, some two or more of whom single out a bird and presently make him captive, disconcerted as he is by the noise."

"This beautiful bird," says Capt. Boys, "has a peculiarly wild note, and is very difficult of approach. I never obtained but one specimen, and that was procured at considerable risk, as the khud up which I followed it was a resort for wild animals of all kinds; indeed, while engaged in its pursuit, a leopard set up his hideous snarling from the opposite side of the khud; my servant quietly walked off unperceived, and it was not until I had brought down the bird that I was conscious of being alone: having no desire to meet the leopard, who had been roused by the firing, I walked away as quietly but as quickly as possible. The khud is an awkward one, N.W. of Bumourie, with a small stream running through it. Many species of Woodpecker abound in the neighbourhood."

The sexes, when they have attained their fully adult plumage, are so similar that they can only be distinguished by the smaller size of the female; the youthful dress, on the contrary, is characterized by a uniformity of tint on the upper surface, and by the absence of the blue gular plumes, which renders their immaturity very conspicuous.

Crown of the head verditer blue; cheeks, sides of the neck, all the upper surface, wings and tail sap green; down the centre of the throat and neck a number of long pendent feathers, of which those on the throat are verditer blue, and those on the breast deep bluish green margined with verditer blue; under surface of the wings and tail deep buff; under surface buff streaked with dull green; irides reddish brown; bill blue-grey; legs pale green in front, light brown behind.

The Plate represents the two sexes of the natural size, on the *Dictamnus Himalayanus*.



NYCTIORNIS AMICTUS.

NYCTIORNIS AMICTUS.

Red-throated Nyctiornis.

Merops amictus, Temm. Pl. Col. 310.—Less. Traité d'Orn., p. 237.—Ib. Man. d'Orn., tom. ii. p. 85.
Nyctiornis amictus, Swains. Zool. Ill., 2nd ser. vol. ii. pl. 56.
———— *amicta*, Gray and Mitch. Gen. of Birds, vol. i. p. 87.
Alcemerops amicta, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 52.

Very few of the many gaily coloured Insessorial birds, of which the gorgeous Ind can boast, have greater claims to our notice than the *Nyctiornis amictus*, whose delicate blossom-coloured head, and lengthened gular plumes of rich scarlet, offer a strong contrast to the green colouring of its body, and render it an object of singular beauty. In size and form it so closely resembles the *N. Athertoni*, that in the absence of all information on the subject, we may assume that the habits and economy of the two species are equally similar; the countries inhabited by them are, however, distantly separate; the great stronghold of the latter being in the northern, and that of the present in the southern provinces of India; the Malacca peninsula and Sumatra being the only countries in India proper whence I have seen specimens. In Sumatra it is common; and it was from thence, according to M. Temminck, that the first specimens seen in Europe were sent by MM. Diard and Duvaucel to the Museum at Paris; two other examples being transmitted nearly at the same time to the "Musée du Pays Bas" by M. Van Den Berg, the Netherlands resident at Paddang. Few of the many extensive collections, so frequently sent to this country from Sincapore, are without examples of this fine species, whence we may infer that it is very common in the forests where those collections are made, and which in all probability are in the immediate neighbourhood of the flourishing port where they are shipped.

As is the case with the *Nyctiornis Athertoni*, the adults of both sexes offer but little difference in their plumage, while in the young of the year the forehead and throat are of the same colour as the upper surface; of course in the transition state a parti-coloured plumage is the natural result, and in this state specimens may be seen in the Museum at Leyden and elsewhere.

Base of the bill surrounded by a narrow mark of verditer-green; forehead beautiful liliaceous, tinged posteriorly with bluish; sides of the neck, all the upper surface, wings and tail grass-green; down the centre of the throat and breast a series of pendent feathers, of which those on the throat are rich scarlet, and those on the breast very dark green, edged with rich scarlet; under surface of the wings and tail yellowish buff, the latter largely tipped with glossy black which is not perceptible on the upper surface, except on the edge of the interior webs of the lateral tail-feathers; under surface pale green, becoming still paler on the vent.

The accompanying Plate represents two birds in the adult livery at the size of life, on the *Gossypium herbaceum*.



MEROPOGON FORSTENI.

J.Gerrald & H.C.Richter del et lith.

Walter Imp.

MEROPOGON FORSTENI.

Forsten's Bee-eater.

Merops Forsteni, Temm. in Mus. Lugd.—Schl. De Dierk., fig. at p. 53.—Idem, Mus. des Pays-Bas. *Merops*, sp. 8. —Meyer, Journ. für Orn., 1871, p. 231.

Meropogon Forsteni, Bonap. Consp. Gen. Av., tom. i. p. 164.—Wall. Ibis, 1860, p. 142.—Wald. Trans. Zool. Soc., vol. viii. pp. 42, 111.

Nyctiornis (*Meropogon*) *Forsteni*, G. R. Gray, Hand-list of Birds, part i. p. 98.

For many years a single specimen of this showy and fine Bee-eater graced the Museum at Leyden, and remained the only individual that had reached Europe, until Dr. Meyer recently rediscovered it and added additional specimens to our collections. That it should have escaped the researches of Mr. Wallace, whose perseverance as a collector has been unequalled by any traveller who has braved the dangers of the islands of the Eastern Archipelago and New Guinea, is very surprising, the more so as, to use his own words, he had set his heart upon obtaining it. Much credit, therefore, is due to Dr. Meyer for supplying us with additional examples, and for giving us a few brief details respecting its habits, which will be found below, quoted from the 'Journal für Ornithologie' for 1871.

A difference of opinion has arisen among ornithologists as to the propriety of separating this bird from the genus *Merops* and making it the type of a new one. Some would place it with *Nyctiornis*: but Lord Walden has clearly shown that it possesses characters not found in that genus nor in *Merops*; and I for one quite agree with the late Prince Charles L. Bonaparte and his Lordship in generically separating it from both. Lord Walden's remarks (comprised in his very valuable memoir on the birds known to inhabit the Island of Celebes, published in 1872, in the eighth volume of the 'Transactions of the Zoological Society of London') are as follows:—

"This species has the first primary half the length of the second, which is a little shorter than the third. The third and fourth are longest, and equal. The fifth is somewhat shorter than the third and fourth, but longer than the second. In the structure of the wing, therefore, it differs from both *Merops* and *Melittophagus*, but agrees with *Nyctiornis*. The grooved culmen of *Nyctiornis* is not present; but a shallow channel extends from the base of the maxilla, on both sides of the culmen, for two thirds of its length. This character is not possessed by either *Nyctiornis*, *Merops*, or *Melittophagus*. The rectrices are truncated, as in *Nyctiornis*; but the middle pair are elongated, as in *Merops*, and closely resemble in form and proportion those of *M. philippensis*. The feet are those of the family. The elongated pectoral plumes resemble in character the same feathers in *Nyctiornis*. Altogether *M. Fosteni* may be regarded as a link uniting *Nyctiornis* to *Merops*, but most nearly allied to *Nyctiornis*."

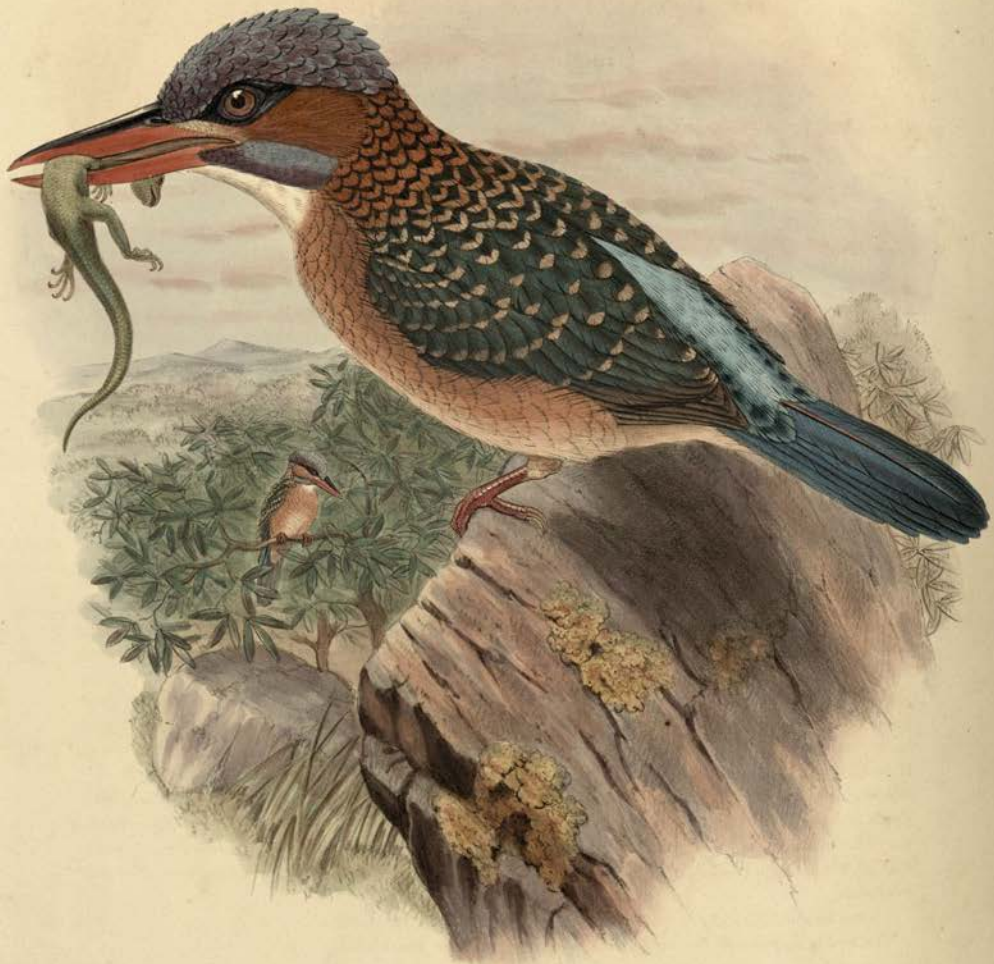
Lord Walden remarks in addition that "the African species which most nearly resembles *M. Forsteni* in the graduation of the quills and the formation of the rectrices, the middle pair excepted, is *M. bullockoides*, Smith."

"In the year 1840," says Dr. Meyer, "Forsten found at Tondano, in Northern Celebes, a bird which Schlegel subsequently described as *Merops Forsteni*. The single specimen which arrived at Leyden was the only one that had then reached Europe; and this beautiful bird remained for a long time a desideratum to ornithologists from its rarity, and especially on account of its resemblance to another species, from Western Africa. The authorities at Leyden gave themselves no end of trouble in endeavouring to obtain additional specimens, Rosenberg remaining on the spot where the first was found for a considerable time with that especial object, but all in vain. I have now at last succeeded in killing several males and females in the neighbourhood of Rurukan, where Wallace had established a collecting-station. In a state of nature the bird keeps in deep, hardly accessible woods, perches on the highest trees, and has all the habits of the *Meropidæ*. It is by no means rare, but difficult to find, owing to its retreating into the thick woods. To the natives it is unknown; and it was only after many vain endeavours that I succeeded in obtaining the specimens above mentioned."

The sexes, which are alike in colouring, may be thus described:—

The lengthened feathers of the crown, cheeks, throat, and breast rich deep blue; upper surface of the body, wings, and upper tail-coverts deep grass-green; two centre tail-feathers a somewhat richer green, tinged with blue towards their tips; lateral tail-feathers deep chestnut-red, narrowly edged throughout their entire length with grass-green; back of the neck dark brown; abdomen green, suffused with brown on the vent and under tail-coverts; bill black; irides crimson; feet slate-colour.

The figure is of the natural size.



ACTENOIDES HOMBRONI.

J. Gould. & W. Hart. del. et lith.

Walter Imp.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

ACTENOIDES HOMBRONI.

Hombron's Kingfisher.

Actenoides hombroni, Bp. Consp. i. p. 157 (1850).—Reichb. Handb. Alced. p. 36, t. ccccxxii. fig. 3147 (1851). Bp. Consp. Volucr. Anis. p. 9 (1854).—Walden, Tr. Z. S. ix. p. 155 (1875).

——— *variegata*, Hombr. & Jacq. Voyage Pôle Sud, Zool. iii. p. 101 (1853).

Halcyon hombroni, Gray, Hand-l. B. i. p. 93 (1869).—Sharpe, Monogr. Alced. p. 221, pl. 84.

I HAVE the greatest satisfaction in presenting my readers with a figure of this beautiful Kingfisher, inasmuch as it is evident from the plate of the bird given in Mr. Sharpe's 'Monograph' that he was unacquainted with the adult plumage. We learn from his book that personally he had never seen an example of the species, but had procured a drawing of the original type from M. Huet, and had reproduced it in his 'Monograph.' Independently of this mode of procedure being somewhat unsatisfactory, the original specimen appears to me to be immature; and hence I believe that I am now giving for the first time a figure of the full-plumaged bird. For the opportunity of doing this I am indebted to Professor Steere, who shot the specimen in the island of Mindanao. I am also indebted to Mr. Bowdler Sharpe for the following description of it, taken from his paper on Dr. Steere's birds in the 'Transactions' of the Linnean Society:—

"*Adult male*. Head and nape bright blue, more brilliant on the sides of the head, over the eye, and on the nape; round the latter a narrow line of deep black; ear-coverts tawny chestnut; along the lower line of the lores a streak of black feathers reaching below the eye and widening behind the latter, being here shaded with blue; cheeks bright blue, forming a broad band; sides of neck and hinder part of the latter deep tawny, varied with narrow black edgings to the feathers; mantle blackish, mottled with tawny spots, these being subterminal, with a narrow black fringe; middle of back, and scapulars and wing-coverts, green with a slight shade of verditer, each feather having a distinct subterminal spot of ochraceous buff; quills blackish, externally washed with greenish, the primaries edged with ochraceous, the secondaries with the same subterminal spot of ochre as on the wing-coverts; lower back, rump, and upper tail-coverts bright silvery cobalt, the sides of the back and the lateral coverts blackish washed with blue; tail-feathers deep blue with black shafts; throat white slightly washed with tawny; rest of under surface deep tawny, whiter on the centre of the abdomen, the breast-feathers with narrow, nearly obsolete, blackish margins; thighs externally blackish, internally deep tawny; feathers at sides of vent, adjoining sides of lower back, deep blue, the outer web more or less ochraceous; under wing-coverts and axillaries deep tawny; the quills blackish below, edged with pale tawny buff along the inner web; bill coral-red, the culmen black (in skin); iris hazel.

"Total length 11·3 inches; culmen 2·0, wing 4·95, tail 4·15, tarsus 0·75."

The bird is represented, in the accompanying Plate, of the size of life.



ACTENOIDES LINDSAYI.

J. Gould & W. Hart del. et lith.

Walter Imp.

ACTENOIDES LINDSAYI.

Lindsay's Kingfisher.

Dacelo lindsayi, Vigors, P. Z. S. 1831, p. 97.—Eyd. & Soul. Voy. Bonite, p. 100, pl. 7 (1841) —Schl. M. P.-B. Alced. p. 23 (1863).

——— *lessoni*, Vigors, P. Z. S. 1831, p. 97.

Halcyon lindsayi, Gray, Gen. B. i. p. 79, pl. 27 (1846).—Id. List of Fissirostres in B. M. p. 52 (1848).—Bp. Consp. i. p. 154 (1850).—Cass. Cat. Halc. Phil. Mus. p. 5 (1852).—Gray, Hand-l. B. i. p. 93 (1869).—Sharpe, Monogr. Alced. p. 217, pl. 82 (1874).

Paralcyon lindsayi, Reichenb. Handb. Alced. p. 36, Taf. ccccxxi. figs. 3143–44 (1851).—Bp. Consp. Vol. Anis. p. 9 (1854).

Astacophilus lindsayi, Cab. & Heine, Mus. Hein. Th. i. p. 162.

Actenoides lessoni, Hartl. J. f. O. 1854, p. 64.

Alcedo lindsayi, Martens, J. f. O. 1864, p. 18.—Id. Preuss. Exped. Ostafr. p. 189 (1865).

Actenoides lindsayi, Walden, Tr. Z. S. ix. p. 156.

In size Lindsay's Kingfisher is intermediate between *Actenoides concretus* and *A. hombroni*. In colouring it also differs from both, and is to be distinguished at once by its scaly breast, the feathers of which are white edged with green. Nothing has as yet been recorded concerning the habits of this Kingfisher, which still remains a rare bird in our collections. It is, however, apparently an inhabitant of the island of Luzon, whence come the very fine examples which I have figured in my Plate. The following description is taken from Mr. Sharpe's 'Monograph of the Kingfishers':—

"Head olive-green, washed with clearer green, especially over the eye; forehead and lores, with a stripe extending backwards over the eye, tinged with buff; sides and back of the head beautiful verditer, a moustachial stripe also of the same colour; ear-coverts and a narrow line of feathers running round the back of the head black; a line extending from below the eye and encircling the neck so as to form a collar, as well as the entire throat, rich cinnamon; upper part of the back, scapulars, and wing-coverts dull green, each feather spotted at the tip with ochre; lower part of the back and upper tail-coverts bright green, each feather mesially streaked with ochre; quills brown, buff at the base of the inner web, externally edged with buffy olive, especially on the secondaries; tail olive-brown, tipped with ochre; under surface white, breast and flanks broadly edged with greenish brown, giving a scaly appearance; bill black, the lower mandible and a line on the upper mandible yellowish; feet olive-brown. Total length 9·6, culmen 1·8, wing 4·3, tail 3·6, tarsus 3·6.

"*Female.*—Head dull olive-green, with a circlet of verdigris encircling the head from above the eye; a line of feathers from the base of the bill forming an eyebrow, and another running below the ear-coverts fulvous; cheeks olive-green, washed with verdigris; ear-coverts black; feathers of the sides and hinder part of the neck brown, mottled with buff; rest of the upper surface of the body brown, washed with green, and spotted everywhere with fulvous, these spots being largest on the scapularies; quills and tail brown, edged with pale fulvous brown, the latter barred on the inner web with the same colour; rump dull green, washed with brighter green, and longitudinally streaked with fulvous; throat and lower abdomen white; the centre of the breast white, each feather margined with brown and green, producing a mottled appearance; bill black, lower mandible yellow; feet reddish brown. Total length 10·7 inches, culmen 1·7, wing 4·3, tail 3·57, tarsus 0·6.

The figures in the Plate represent an adult male and female of this species, of about the natural size, drawn from individual skins in my own collection.



ACTENOIDES CONCRETUS.

Edmund & W. Hart del. et lith.

Walter Imp.

ACTENOIDES CONCRETUS.

Sumatran Kingfisher.

Dacelo concreta, Temm. Pl. Col. 346 (1825).—D'Orb. Dict. d'Hist. Nat. t. 4 (1849).—Schleg. Mus. P.-B. *Alced.* p. 26 (1863)—Id. Vog. Nederl. Ind. pp. 25, 27, pl. 8 (1864).—Swinh. Ibis, 1873, p. 231.—Schleg. Revue Alced. Mus. P.-B. p. 18 (1876).

Halcyon varia, Eyton, P. Z. S. 1839, p. 101.—Cass. U.S. Expl. Exp. Aves, p. 223 (1858).

——— *concreta*, Gray, Gen. B. i. p. 79 (1846).—Id. List of Fissirostres in B. M. p. 52 (1848).—Bp. Consp. i. p. 154 (1850).—Cass. Cat. Halc. Phil. Mus. p. 11 (1852).—Pelz. Reis. Novar. Vög. pp. 41, 161 (1865).—Gray, Hand-l. B i. p. 93 (1869).—Sharpe, Monogr. Alced. p. 219, pl. 83.

Todiramphus varius, Blyth, J. A. S. B. xv. p. 11 (1846).—Id. Cat. B. Mus. A. S. B. p. 47 (1849).

Paralcyon concreta, Reich. Handb. Alced. i. p. 36, Taf. cccexxi. fig. 3145, Taf. cccexxii. figs. 3145–46 (1851).

Caridagrus concretus, Cab. & Heine, Mus. Hein. Th. ii. p. 161 (1860).—Salvad. Ucc. Born. p. 102.

In the different countries of the world in which I have lived, it has been my lot to see and to study members of the two groups of Kingfishers which Mr. Sharpe calls "fish-eating" and "reptilivorous." Our own *Alcedo ispida* is the most typical example of the former group, while perhaps the great Laughing Jackasses of Australia are the extreme representatives of the other forest-loving reptile-eating Kingfishers. These two sections, into which the family has been divided by Mr. Bowdler Sharpe in his 'Monograph,' appear to me to rest on natural grounds; but I cannot follow him in his arrangement of some of the intermediate forms, such as the genus *Halcyon* &c. Nature has here provided us with several groups, each possessing distinctive characters as regards colour &c., which seem to me to afford strong grounds for generic separation. Thus I would follow Lord Tweeddale and Count Salvadori in separating the green Kingfishers as *Sauropatis*; and I feel justified in keeping the three species now figured under the one generic heading of *Actenoides*, believing, as I do, that their peculiar coloration and the character of the feathers point them out as being all closely and generically allied.

I regret that there is nothing recorded of the habits of this fine Kingfisher, which is a native of Malacca, Sumatra, and Borneo.

The following careful description is drawn from Mr. Sharpe's 'Monograph,' with the single alteration that the bird which he describes as "young" is here considered to be the old female, Mr. Swinhoe (*l. c.*) having procured a properly sexed specimen of the hen bird in this plumage at Penang.

"Head dull green, with a line of brighter green from above the eye encircling the nape; below this bright green circlet a broad line of black; eyebrow and ear-coverts pale rufous; a line of feathers from base of bill down the sides of the neck deep ultramarine; back of neck deep sienna, below which the back is black; upper part of the back and scapularies rich ultramarine; lower part of the back very bright cobalt; quills brown, the inner web pale rufous at the base; the whole of the wing-coverts and the outer web of the quills rich ultramarine, uniform with the scapularies; tail blue above, black beneath; under surface of the body rich sienna, the middle of the abdomen white; upper mandible black, fine rich ochreous buff on the under mandible and edge of the upper; feet yellow. Total length 9 inches, culmen 1·9, wing 4·5, tail 2·2, tarsus 0·5, middle toe 0·75.

"*Female.*—Similar to the adult male, but has the wing-coverts and scapulars spotted with ochre."

In the Plate are represented an adult pair of birds, of the natural size.



HALCYON FUSCA.

HALCYON FUSCA.

Indian Kingfisher.

Martin-pêcheur de la côte de Malabar, Buff. Pl. Enl., 894.

Alcedo fusca, Bodd. Tabl. Pl. Enl., p. 51. t. 894.

—— *smyrnensis* var. γ, Gmel. edit. Linn. Syst. Nat., tom. i. p. 457.—Lath. Ind. Orn., vol. i. p. 248.—Vieill. Encyc. Méth. part i. p. 286, var. *a*.

Dacelo smyrnensis, Less. Traité d'Orn., p. 246.—Sykes, Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. p. 84.—M'Clell. in Proc. of Zool. Soc., part vii. p. 156.—Jerd. Madras Journ. Lit. and Sci. 1840, p. 230.—Pears. Journ. Asiat. Soc. Beng. 1841, p. 633.—Gray, Cat. of Spec. and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 47.

Halcyon fusca, Gray and Mitch. Gen. of Birds, vol. i. p. 79, *Halcyon*, sp. 12.—Gray, List of Birds in Coll. Brit. Mus., part ii. p. 55.—Bonap. Consp. Gen. Av., p. 155, *Halcyon*, sp. 23.—Cass. Cat. of Halc. in Coll. Acad. Sci. Philad., p. 8. sp. 3.—Horsf. and Moore, Cat. of Birds in Mus. E. I. Comp., vol. i. p. 125.

Entomothera fusca, Reich. Handb., i. p. 12. 32. t. 404. 3088–89.

Alcedo erythrorhyncha, Licht. in Mus. Berol.

Entomobia fusca, Cab. Mus. Hein., Theil ii. p. 155.

Halcyon Smyrnensis, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 47.—Layard in Ann. and Mag. Nat. Hist., vol. xii. 2nd ser. p. 172.—Burgess in Proc. of Zool. Soc., part xxiii. p. 28.

Kilkila of the Hindoos, Jerdon.

Sada-bak Match-ranga of the Bengalese, Blyth, and Dr. F. B. Hamilton.

Matsya-ranga, in Sanscrit, Wilson.

Caluvy Cooroovi, Mal.: lit. Large-mouthed Bird Layard.

Some ornithologists are of opinion that the *Halcyon* of Asia Minor is specifically distinct from the one figured on the accompanying Plate, which is so very generally distributed over the whole of India that it has had the trivial name of the Indian Kingfisher bestowed upon it. Now the only differences which I am able to detect between it and the Smyrna bird, are a slight variation in size and in brilliancy of colouring, the Indian species being somewhat smaller and more intense and beautiful in colour.

The *Halcyon fusca* is found in all parts of the Indian Peninsula, Assam, Aracan, Tenasserim, and Ceylon; and I have also seen specimens from Siam.

Captain Burgess informs us that "this Kingfisher is one of the most common of its tribe in the Deccan, frequenting almost every stream and nullah. It breeds during the month of May, in holes of the banks of rivers, laying as many as seven eggs, of a beautiful pinky tinge, owing to the colour of the yelk showing through the thin delicate shell."

"This," says Mr. Jerdon, "is the most common and generally spread of the Indian Kingfishers, frequenting not only the rivers and brooks, tanks, wells, and wet paddy-fields, but also dry cultivated ground, groves, old walls, and many other similar situations. It preys upon small fish (which it pursues below the surface), frogs, tadpoles, and various water insects; also on small lizards, grasshoppers, and various other large insects. It has a very loud, harsh, rattling scream, generally uttered during flight. Is said to breed in holes on the banks of rivers."

Mr. Layard states that in Ceylon this bird is "very common and widely distributed, feeding indiscriminately on fresh- or salt-water fish, crabs, beetles, and butterflies. I have seen them capture these last in the manner of Flycatchers (*Muscicapidæ*), darting from a sprig, and seizing them in the air, their mandibles closing with a snap, audible at the distance of some yards. One, which was unluckily introduced into an aviary, destroyed most of the lesser captives ere he was detected as the culprit; he was at last caught in the act of seizing a small bird in his powerful bill; he beat it for a moment against his perch, and then swallowed it whole. The nest of this species is found in decaying trees; the parent bird deposits two white eggs (axis 15 lines, diam. 13 lines), beautifully smooth and shining. I have procured eggs in the north of the island in *December*, in the south in April."

Head, cheeks, sides and back of the neck, edges of the shoulders, under coverts of the wing, flanks, abdomen, vent, under tail-coverts and thighs dark chestnut-brown; centre of the back and scapularies dull green washed with verditer blue; lower part of the back and upper tail-coverts fine verditer blue; greater wing-coverts black, the lowermost row tipped with deep green; spurious wing green; basal portion of the outer webs of the primaries pale green, passing into deeper green, basal portion of their inner webs white; the apical half of both webs deep black; secondaries bluish green on their external webs, black on the inner; tail deep green, glossed with blue above, brownish black beneath; chin, throat, and centre of the breast white; irides hazel; bill, legs, and feet deep orange-red.

The Plate is intended to represent both sexes of the size of life; it will be seen, therefore, that they do not differ in their colouring. The climbing plant is the *Otostemma lacunosa*.



HALCYON GULARIS.

HALCYON GULARIS.

Manilla Kingfisher.

Grand Martin-pêcheur de Madagascar, Buff. Pl. Enl. 232.
Alcedo smyrnensis var. *β*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 456.—Vieill. Ency. Méth. Orn., part i. p. 286.
—— *gularis*, Kuhl and Swind., Buff. Fig. Av. Coll. Nom. Syst., 1820, p. 4.
—— *rufirostris*, Meyen, Beitr., iii. p. 94.
—— *smyrnensis*, Kittl. Kupf. Vög., p. 10. t. 14. 2. 232.
Halcyon ruficollis, Swains. in Lard. Cycl. Class. of Birds, vol. ii. p. 335.
Alcedo melanoptera, Temm. Tabl. Méth., p. 75.
—— *smyrnensis* var. *albogularis*, Blyth, Journ. Asiat. Soc. Beng. 1843, p. 998.—Id. 1844, p. 394.
Halcyon gularis, Gray and Mitch. Gen. of Birds, vol. i. p. 79, *Halcyon*, sp. 13.—Kaup, Fam. Eisv., p. 8.—Bonap. Consp. Gen. Av., tom. i. p. 155, *Halcyon*, sp. 21.
Entomothera gularis, Reich. Handb., i. p. 13. 34. t. 401. 3082.
Entomobia gularis, Cab. Mus. Hein., Theil ii. p. 155.

A SUPERFICIAL view of this Kingfisher would lead to the supposition that it is a mere variety of the *Halcyon fusca* so generally spread over India; but if a careful examination and comparison of the two birds be made, they will be found to differ very materially, and to constitute two really distinct species. It is not only by the lesser amount of white on its throat that the Manilla bird is to be distinguished from its Indian ally, but other differences are also observable: in the first place, the entire plumage is of a much richer hue, particularly the blue of the wings, which is truly beautiful; in the next, there is a much larger mark of black on the centre of the wing, and a greater amount of this colour on the tips of the primaries, so that, when the wing is outspread, the white which occupies the base of the primaries is much more circumscribed, and the white itself is much purer and more conspicuous; the under surface, too, is wholly chestnut, with the exception of that part of the throat termed the chin.

The only country from which I have seen or received specimens is the rich island of Manilla, where it doubtless takes the place of the *Halcyon fusca* of India.

The sexes offer no perceptible difference either in colour or markings, in which respect they assimilate to the Indian and many other *Halcyons*; their habits and economy, too, are said to be very similar, sometimes feeding upon fish and lizards, and at others upon crabs and various crustaceans, to which insects are frequently added.

Head, cheeks, back and sides of the neck, throat, under coverts of the wings, and the whole of the under surface of the body rich reddish chestnut, darkest on the head and back of the neck; back and scapularies dull green washed with verditer blue; lower part of the back and upper tail-coverts fine verditer blue; wing-coverts deep black, a few of those near the shoulder dark green; spurious wing greenish blue; basal portion of the primaries greenish blue on their outer webs and white on their inner, the apical portion of both webs black; secondaries greenish blue on their outer webs, their inner webs being green next the shaft and black on the margin; tail bluish green above, black beneath; chin white; irides hazel; bill, legs and feet deep orange-red.

The Plate represents both sexes, coloured as accurately as possible. The plant is the *Tamarindus officinalis*.



HALCYON ATRICAPILLUS.

HALCYON ATRICAPILLUS.

Black-capped Kingfisher.

Alcedo pileata, Bodd. Tabl. des Pl. Enl. de D'Aubent., p. 41.
——— *albiventris*, Scop. Flor. et Faun. Insub., p. 90.—Gray and Mitch. Gen. of Birds, vol. i. p. 79, *Halcyon*, sp. 9, and vol. iii. app. p. 4 (app. to p. 79).
——— *atricapilla*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 453.—Lath. Ind. Orn., vol. i. p. 251.—Shaw, Gen. Zool., vol. viii. p. 70.—Lath. Gen. Hist, vol. iv. p. 30.—Bonn. et Vieill. Ency. Méth. Orn., part i. p. 289.
——— *atricapilla*, Less. Cent. de Zool., p. 36.
Halcyon atricapillus, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 99.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 124.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 47.—Temm. Pl. Col. 613.—Gould in Proc. of Zool. Soc., part xxvii. pp. 150, 151.—Layard in Ann. and Mag. Nat. Hist., 2nd ser. vol. xii.
Martin-pêcheur à coiffe noire, Buff. Hist. Nat. des Ois., tom. vii. p. 189.—Ib. Pl. Enl. 673.
Black-capped Kingfisher, Lath. Gen. Syn., vol. ii. p. 624.—Shaw, Nat. Misc., pl. 465.
Dacelo atricapilla, Less. Traité d'Orn., p. 246.
Alcedo Brama, Less. Cent. de Zool., pl. 8.
Halcyon pileata, Gray and Mitch. Gen. of Birds, vol. i. p. 79, *Halcyon*, sp. 8.—Ib. List of Birds in Coll. Brit. Mus., part. ii. sec. 1, *Fissirostres*, p. 54.—Cassin, Cat. of *Halcyonidæ* in Coll. of Acad. Nat. Sci. Philad.
——— *atricapilla*, Bonap. Consp. Gen. Av., p. 155, *Halcyon*, sp. 20.

For a Kingfisher, the characteristics of which are a large bill and a short stumpy tail, this bird, from its more lengthened form, may be considered a far from inelegant species, to say nothing of its rich colouring. Its native countries are India and China, from both of which I have received specimens. Mr. Blyth states that it is frequently seen on the eastern side of Bengal, but is rarely met with on the western; and that it also frequents the Sunderbunds, the Malay Peninsula, and the Archipelago. Those who have consulted the volume of the 'Proceedings of the Zoological Society of London' for 1859 will observe that it was sent from Siam by Sir Robert Schomburgk, Her Majesty's Consul-General at Bankok, who, besides paying due attention to his official duties, has found time to do much for natural science. On the opposite page of the same volume of the 'Proceedings' I have also recorded it as occurring among the birds collected in Tavoy by Captain Briggs, Deputy Commissioner of that province,—a gentleman equally assiduous in making us acquainted with the natural productions of a district nearly parallel to that in which Sir Robert Schomburgk is pursuing his researches in Siam; thus it will be seen that mere lists of birds, like those referred to, are of great value as showing the range of species, however uninteresting they may at first sight appear. "This lovely Kingfisher," says Mr. Layard, "has but once fallen under my notice as an inhabitant of Ceylon. The specimen in question was shot in the Jaffna district, in the island of Valenny. I know nothing personally of its habits." As is the case with the Kingfishers generally, little perceptible difference occurs in the colouring of the sexes.

Head, sides of the face, band across the upper part of the back, shoulders and wing-coverts black; upper part of the back, scapularies, outer webs of the secondaries, and upper surface of the tail deep ultramarine blue; lower part of the back and upper tail-coverts smalt-blue; basal portion of the inner webs of the primaries pure white; outer webs pale lilac to the same extent; the apical portions black, margined for some distance externally with smalt-blue; collar at the back of the neck, chin, throat, and centre of the breast buffy white; sides of the neck, flanks, abdomen, vent, under surface of the wing and under tail-coverts rich rust-colour, becoming paler where it blends with the buffy white on the sides of the neck; under surface of the tail black; bill coral-red; irides dark brown; feet red.

The larger figure is of the natural size.



HALCYON FULGIDUS, *Gould*

Gould and H. Richter del. et lith.

Hullmandel & Walton, Imp.

HALCYON FULGIDUS, *Gould.*

Blue-and-white Kingfisher.

Halcyon fulgidus, Gould in Proc. of Zool. Soc., part xxv. p. 65.

I PUBLISHED a description of this remarkably fine species of *Halcyon* in 1857, taken from specimens received direct from Mr. Wallace, by whom they had been collected in the island of Lombock. It is very nearly allied to the *H. atrocapillus*, but it is of considerably larger size, and, to my mind, is a still more beautiful species, its snow-white neck and under parts offering a striking contrast to the rich deep blue of the upper surface,—a colour interrupted only by the lengthened patch of bluish-white feathers of the rump, which feathers have the appearance of having been broken or split up, and are altogether unlike those of the remainder of the body; this mark must show conspicuously when the bird is alive, and particularly during flight. Of this very fine and rare bird two beautiful specimens grace my collection. Of these, one is somewhat smaller than the other; there also occurs a slight difference in the tints of the upper surface, the blue being less pure, and assuming a browner hue; this specimen has white under tail-coverts, while in the other the coverts are dark blue; in all probability, the one with the white under tail-coverts is a young bird.

The figure in the accompanying plate, and the following description, will convey a correct idea of this new and valuable discovery of Mr. Wallace.

The following description and remarks are taken from the 'Proceedings of the Zoological Society' for 1857:—

"Head, cheeks, back of the neck, back, wings, flanks, and under tail-coverts deep black, washed with rich ultramarine blue on the back of the neck, back and wings; rump-feathers glaucous or chalky-white, with black bases, and with a narrow line of blue between the black and the white portion, which alone is seen; tail deep ultramarine blue; chin, breast, and abdomen white; bill and feet coral-red.

"This is an exceedingly fine species, of which I have not been able to find a description. I am therefore induced to believe it to be new."

The figures are of the natural size.



HALCYON OMNICOLOR.

Hodgson del. et lith.

Hullmandel & Walton imp.

HALCYON OMNICOLOR.

Many-coloured Kingfisher.

Alcedo melanoptera, Horsf. in Linn. Trans., vol. xiii. p. 174.
Halcyon melanopterus, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 100.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 127.
Alcedo omnicolor, Temm. Pl. Col., 135.
Dacelo omnicolor, Less. Traité d'Orn. p. 247.
Halcyon melanoptera, Gray and Mitch. Gen. of Birds, vol. i. p. 79, *Halcyon*, sp. 18.—Gray, List of Birds in Coll. Brit. Mus., part ii. sec. 1, *Fissirostres*, p. 54.
——— *omnicolor*, Bonap. Consp. Gen. Av., p. 155, *Halcyon*, sp. 22.
Alcedo cyanoventris, Vieill. Nouv. Dict. d'Hist. Nat., tom. xix. p. 412.—Cassin, Cat. of Halcyonidæ in Coll. Acad. Nat. Sci. Philadelphia.

A more appropriate name than *omnicolor* could scarcely have been given to this wonderfully coloured species of Kingfisher; for, on looking at the fine specimen now before me, it appears almost questionable whether it has not been manufactured by some clever taxidermist out of two or three species, instead of being as real and natural as any other member of the great family of which it forms a part. Were I strictly to follow the law of priority with regard to specific appellations, I ought, perhaps, to have retained that of *melanopterus* for this species; but, as nearly all the *Halcyonidæ* have black shoulders, I have considered it advisable, like Temminck and Bonaparte, to retain the more appropriate title of *omnicolor*. It is somewhat remarkable that there should be no recorded information respecting the habits, economy, and range of so fine a species; yet true it is that not a word has been written on the subject: we know that the island of Java is the country whence the specimens in our museums have been sent; and that is all. There appears to be little or no difference in the colouring of the sexes; some specimens, however, have the brown of the throat, particularly that part of it nearest the bill, of a much lighter colour than others,—a feature which may be sexual or a mark of immaturity.

Nothing can be more lovely than the colours of this bird, or more delicately white than the inner webs of its primaries, which mark is of course most conspicuous when the wing is spread, and then offers a striking contrast to the green and black of the other part of the wings and tail; the upper surface is further varied by the entire back and rump being of a smalt-blue, while the back of the neck is chestnut, with a narrow band of blue separating that colour from the brownish-black of the head.

The following is a more minute description of this fine bird:—

Head and face dark umber-brown, deepening into blackish brown on the nape, below which is a narrow crescentic band of deep glossy blue; this is succeeded by a broad band of rich chestnut, which passes round the sides of the neck, and unites with the lighter chestnut of the throat and front of the neck; back, scapularies, upper tail-coverts, abdomen, and flanks smalt-blue; breast-feathers chestnut, bordered with smalt-blue; greater wing-coverts black; lesser wing-coverts verditer blue, edged with smalt blue; basal three-fourths of the primaries white on their inner webs, verditer green on their outer webs, deepening into dark green near the tips, which are black; this latter colour decreases in extent as the feathers approach the body; secondaries black on their inner webs above, and on both webs beneath, the upper surface of the outer web being verditer green, passing into bluer green as the feathers approach the body; these bluer feathers are crossed by indistinct bars of a deeper hue; there is also a line of dark green on the inner webs parallel with the shaft, which is black; tail-feathers bluish emerald-green, glossed with verditer green on their outer webs; shafts and under surface black; irides dark brown; bill coral-red; feet red.

The plate represents the bird (in flight) of the natural size, and a miniature figure in the distance.



CARCINEUTES PULCHELLUS, *Horsf.*

Donald W. Hare del. et lith.

Walter Inst.

CARCINEUTES PULCHELLUS, *Horsf.*

Banded Kingfisher.

Dacelo pulchella, Horsf. Trans. Linn. Soc. xiii. p. 175.—Id. Zool. Researches in Java, pl.—Temm. Pl. Col. 277.—Blyth, Cat. Birds Mus. As. Soc. Beng. p. 46.—Moore, P. Z. S. 1854, p. 268.—Horsf. & Moore, Cat. Birds Mus. E.I. Co. i. p. 122.—Schl. Mus. Pays-Bas, Alced. p. 21.—Id. Vog. Nederl. Indië, Alced. pp. 15, 50, pl. 5.

Dacelo buccoides, Temm. Pl. Col. 586.

Halcyon pulchella, Gray, Gen. Birds, i. p. 79.—Id. Cat. Fissir. Brit. Mus. p. 52.—Bonap. Consp. Gen. Av. i. p. 154.—Cass. Cat. Halcyonidæ Philad. Mus. p. 7.—Pelz. Reis. Novara, Vög. p. 44.—Gray, Hand-l. B. i. p. 94, no. 1137.

Lacedo pulchella, Reichenb. Handb. Alced. p. 42, Taf. ccccxxix. figs. 3168, 3169.

Carcineutes pulchellus, Cab. & Heine, Mus. Hein. Th. ii. p. 163.—Sharpe, Monogr. Alced. pl. 96.

This Kingfisher is the oldest known member of the genus *Carcineutes*, having been discovered in the island of Java by the late Dr. Horsfield sixty years ago. It is also an inhabitant of Sumatra and the peninsula of Malacca. Specimens from all these localities appear to me to be inseparable, although no one can examine a large series of males without noticing certain differences. I have seen, for instance, considerable variation in the shade of blue on the upper surface, while the presence or absence of a rufous collar round the hind neck is also a character which has not yet been thoroughly explained. Young birds may be generally told by their brown bills; but even when this still lingers in the bird, the remainder of the plumage appears to be fully adult, the blue and black coloration being quite as vivid as in old birds. At the same time none of the species examined by me come near the Siamese *C. amabilis* for brilliancy of coloration, or for the fine crest which is such an especial characteristic of the latter species.

The rarity of the present bird in Java seems to be affirmed by the few specimens which reach us from that island; and Dr. Horsfield remarks:—"This is a very rare and local bird; and I found it once only, in a low range of hills about 20 miles south-east of Samarang, known in the central parts of the island by the name of the hills of Prowoto." To Mr. Sharpe's 'Monograph' Mr. Wallace contributed the following observation:—"*Carcineutes pulchellus* is found in the thickets near streams, where it seems to feed chiefly on small crabs, which it picks up off the mud." It will be seen by Mr. Davison's observations on *C. amabilis* that he did not find the Banded Kingfisher of Tenasserim near streams, but sometimes many miles away from water. It is doubtless the Tenasserim *C. amabilis* which Mr. Blyth refers to as being met with at Mergui.

The following description I take from Mr. Sharpe's 'Monograph of the Kingfishers:'—

"*Adult male*. Head, nape, back, and wing-coverts black, each feather banded with white and tipped with shining blue; tail black, banded with blue and white; primaries black, the secondaries spotted and tipped with white; forehead, cheeks, and a collar below the nape deep chestnut; throat white; upper part of the breast and flanks pale brownish red, centre of abdomen and under wing-coverts lighter; bill deep red; eyes brown-olive; feet buffy ochre-yellow. Total length 9 inches, culmen 1·4, wing 3·4, tail 2·7, tarsus 0·4.

"*Female*. Above black, broadly banded with ochre; under surface white, with the upper part of the breast and flanks banded with black."

The figures in the Plate represent both sexes of this beautiful Kingfisher, of the natural size, from specimens in my own collection.



CARCINEUTES MELANOPS.

Hewitson del. et W. Hart, lith. et imp.

Walter Inv.

CARCINEUTES MELANOPS.

Black-faced Kingfisher.

Halcyon melanops, Bonap. Consp. Gen. Av. i. p. 154 (1850, ex Temm. MS. in Mus. Lugd.).—Cass. Cat. Halcyonidæ Philad. Mus. p. 7 (1852).—Gray, Hand-l. B. i. p. 94, no. 1138.

Lacedo melanops, Reichenbach, Handb. Alced. p. 42 (1851).—Bp. Consp. Vol. Anis. p. 9 (1854).—Salvad. Ucc. Born. p. 104 (1874).

Carcineutes melanops, Cab. & Heine, Mus. Hein. Th. ii. p. 163, note (1860).—Sharpe, Monogr. Alced. pl. 97.—Id. Ibis, 1879, p. 249.

Dacelo melanops, Schl. Mus. Pays-Bas, Alced. p. 21 (1863).—Id. Vog. Nederl. Indië, Alced. pp. 16, 51, pl. 5 (1864).

This is the Bornean representative of the common *C. pulchellus*; and although it is not so rare in collections as it was when Mr. Sharpe wrote his work on the Kingfishers, it is still a sufficiently scarce bird. At the time alluded to, Mr. Sharpe was unable to describe the female bird, and only a single skin, and that one not fully adult, was known in any museum in this country. Even such ardent collectors as the Marquis Doria and Dr. Beccari were unable to obtain more than one female bird in the course of their explorations in the province of Sarawak, while neither of the Messrs. Everett has furnished it as yet from that locality. As it does not seem to have occurred to Dr. Fischer in Central Borneo, and only once to Schwaner at Banjermassing, it may be considered a rare bird even in some parts of Borneo, to which island it appears to be restricted.

The north-western province of the island is apparently the head quarters of the species, as most of the recent collections from Lumbidan and Brunei made by Governor Ussher and Mr. Treacher contained one or more examples. The latter gentleman also procured it on the Lawas river.

Such I believe to be the extent of our knowledge of this handsome Kingfisher, nothing having been recorded concerning its habits. In plumage it closely resembles the Malaccan *Carcineutes pulchellus*, from which it is distinguished at a glance by its black forehead, face, and collar round the hind neck. It should be noted that in Mr. Sharpe's figure the black collar is omitted, though it is duly mentioned in the description. It would appear to be gradually assumed, though when the bird is fully adult it forms a very conspicuous feature, as will be seen by a reference to my Plate. The female, as might be expected, is so like that of *C. pulchellus* that it is almost impossible to distinguish them; and I fancy that young males of the two birds must be very similar, as in some of the immature males from Borneo the cheeks are rufous, mottled with black, as if the bird commenced with a rufous face, and gradually put on the black one of *C. melanops*.

Having detailed the principal differences between these two nearly allied species, it is unnecessary for me to give a full description, and I must refer my readers to the Plates of the two birds accompanying the present articles.

The figures in the Plate represent the two sexes of the natural size, and are drawn from specimens in my own collection.



CARCINEUTES AMABILIS, *Hume*

Hanhart & W. Hart, Lith. et Hills

Walter Imp.

CARCINEUTES AMABILIS, *Hume*.

Tenasserim Kingfisher.

Carcineutes amabilis, Hume, Stray Feathers, 1873, p. 474.—Sharpe, op. cit. 1874, p. 484.—Hume, op. cit. 1875, p. 51.

Carcineutes pulchellus, Hume (nec Horsf.), Stray F. 1874, p. 470.—Blyth & Walden, Birds of Burma, p. 70.—Hume, Stray Feathers, 1878, p. 79.

For many years I had in my collection a fine male of the present species from Siam; at the time that Mr. Sharpe was writing on the family I over and over again brought it under his notice; and I still maintain that it is not specifically the same as the Malaccan *C. pulchellus*. Nor was I surprised when, in 1873, Mr. Hume described the Banded Kingfisher from Upper Pegu as a new species, as I felt sure that it would turn out to be the same as my Siamese specimen—a conclusion I have since verified, thanks to Lieut. Wardlaw Ramsay, who very kindly lent me some birds from Tenasserim, which, on comparison, turned out to be identical with the Siamese example in my collection.

Mr. Hume, when he characterized the species, described it as similar to *C. pulchellus*, but the males entirely wanting the rufous collar on the nape, while the females have the upper surface ochraceous comparatively narrowly banded with black. Now Mr. Sharpe, when he challenged Mr. Hume respecting the distinctness of the Pegu bird from the Malayan, was doubtless right in disposing of the presence or absence of a nuchal collar as a valid specific character; and he impugns also the distinctions accorded to the female. I can only say that with regard to the latter I consider Mr. Hume to be right and Mr. Sharpe wrong, as I imagine every one who consults my figure will be prepared to admit. The late Lord Tweeddale, in his notes to Mr. Blyth's 'Birds of Burma,' agrees with Mr. Sharpe in considering that *C. amabilis* is specifically the same as *C. pulchellus*; and he speaks of birds from the Malayan peninsula **without** any rufous collar as "very common." Mr. Hume states that he had at the time examined twenty males from Malacca, all of which had a rufous collar, but he has since come to the conclusion that, after all, the Banded Kingfisher from Tenasserim and Pegu is the same as the Malayan bird.

Deserted by Mr. Hume as I am at present, I still venture to maintain the distinctness of *Carcineutes melanops* as a species, but on different grounds. *C. amabilis*, in my opinion, cannot be separated from *C. pulchellus* on account of the presence or absence of the nuchal collar, but on account of its larger size, more splendid crest, and different shade of blue coloration. In addition to the larger crest, it will be seen, on carefully examining the feathers of the latter, that they are grey for nearly the full extent of the feather. In addition to this the female is paler in colour and more narrowly banded than the same sex of *C. pulchellus*.

The localities mentioned by Mr. Hume for this species in Tenasserim are as follows—Meetan, Amherst, Mergui, Palaw-ton-ton, Bankasoon, and Malaroon, where they were obtained by Mr. Davison, who observes:—"I did not meet with this species to the north of Amherst; but there and to the southward it occurred sparingly. Of course, as is well known, this species is not a water Kingfisher. It frequents the forest, avoiding the dense parts. I have killed a good number, both in Tenasserim and the Straits; but I have not, as described by Mr. Wallace (in Sharpe's 'Monograph'), met with them specially frequenting thickets near streams. I have found them in all kinds of localities in the forest, sometimes, it is true, near streams, sometimes many miles away from water. Their food, I found, consisted chiefly of small lizards and various insects, such as wood-lice etc." Mr. Eugene Oates shot a pair of birds near Thayetmyo in the evergreen forests; and Lieut. Wardlaw Ramsay procured the species in the Karen Hills. As already mentioned, I possess a skin from Siam.

I have stated above the characters which induce me to consider the present bird distinct from *C. pulchellus*; and my Plate will demonstrate them quite clearly. Mr. Oates describes the soft parts as follows:—"Bill bright red; inside of mouth somewhat pale red; eyelids and orbital region pale salmon-red; iris yellowish white; legs greenish brown; claws horny." Mr. Hume's description of the soft parts runs thus:—"Legs and feet dull pale green; claws black; bill vermilion-red; base of lower mandible brownish red; gape generally yellowish white; irides purplish grey." The female has the soft parts of the same colour as the male.

In the Plate the figure of the male is taken from my Siamese specimen, and that of the female is from a bird in my own collection also.



DACELO TYRO, *G.R.Gray*

J.Gould and H.C.Richter del et lith. Hullmandel & Walton, Imp.

DACELO TYRO, *G. R. Gray.*

Mantled Kingfisher.

Dacelo tyro, G. R. Gray, Proc. of Zool. Soc., part xxvi. p. 171, Aves, pl. cxxxiii.—J. E. and G. R. Gray's Cat. of Mammalia and Birds of New Guinea in Coll. Brit. Mus., p. 19.

I HAVE in my collection two very fine specimens of this bird, both of which were procured by Mr. Wallace: one of them is much smaller than the other, and is also much darker in all its fulvous tints both of the spottings of the head and the under surface generally: this individual is marked a male, while the larger and more delicately coloured specimen has the feminine indicative on the label. The colouring of the tail in the male specimen is also dark bluish-green, while that of the female is pure green; these differences in the colouring of the tail were also pointed out by Mr. Gray. For a long period I have fancied that the male of our own Kingfisher (*Alcedo ispida*) was smaller than the female; and a question of some interest has now to be solved,—whether or not the same law reigns through the entire family. The two specimens referred to above are both figured in the accompanying plate, the hinder figure representing the male, and the front one the opposite sex.

The spotted feathers of the head from the nape downwards are elongated and spread out, forming a kind of mantle over the back; hence the trivial name I have given to the bird.

The *Dacelo tyro* must be regarded as one of the finest of Mr. Wallace's discoveries. Its true habitat is the Aru Islands, to which it is probably restricted.

The following is Mr. Gray's description:—

Male.—"Top and sides of the head and back of the neck black, spotted and banded with fulvous white; nape and upper part of the back fulvous white, banded and margined with black; scapulars black; wing-coverts black, broadly margined with shining blue; quills and tail black, margined externally with dull blue; upper part of the back black, the lower part glossy silvery blue; under surface pale fulvous, lightest on the throat; upper mandible black, the lower one pale horn-colour."

Female.—"Quills and tail greenish blue."

Young.—"Beneath each feather margined with black; bill black, tipped with pale horn-colour; otherwise the same."

The figures are of the natural size.



ALCEDO GRANDIS. *Blyth.*

J.Gould & H.C.Richter del et lith. Walter Imp.

ALCEDO GRANDIS, *Blyth.*

Great Alcedo.

Alcedo grandis, Blyth, Journ. of Asiat. Soc. Beng., vol. xiv. p. 190.—Id. Cat. of Birds in Mus. Asiat. Soc. Calc., p. 49.—Id. Ibis, 1865, pp. 30, 31; 1866, pp. 348, 363.—Gray, Hand-list of Birds, vol. i. p. 96.—Sharpe, Mon. of Alced., vol. . pl. .

The recent discovery and examination of a second specimen of this extremely rare and fine species of *Alcedo*, of which only a single example was previously known, enables us to fully confirm Mr. Blyth's accuracy in characterizing it as distinct from all its congeners; indeed it now seems surprising that it could ever have been thought identical with any one of them, and the only reason that can have given rise to such an opinion must be that the type specimen, in the Museum of the Asiatic Society at Calcutta, is very imperfect. On reference to the accompanying Plate it will be seen that the *Alcedo grandis* fully merits the specific appellation assigned to it, inasmuch as it is not only the largest member of the genus to which it pertains, but fully equals, if it does not excel, any of its generic allies in the brilliancy of its plumage. Its native country is, undoubtedly, the little-trodden parts of the Nepaulese Terai, and probably, as believed by Mr. Blyth, those portions of Sikhim and Bhootan that are of a similar character.

Of course it would be a mere surmise to say that the sexes are alike in colour; yet it is probable, nay, almost certain, that they are so. Now that a second specimen has been obtained, and the country of which the bird is a native has been ascertained, examples will doubtless ere long find their way into our collections, and an account of its habits and economy be recorded by some one or more of the enterprising naturalists who are now scouring the Asiatic continent for novelties. At this early period of our acquaintance with the species my readers must excuse my copying what has been written respecting it by others, particularly by Mr. Sharpe, the publication of whose Plate and description just precedes my own.

"This truly magnificent species," says the last-mentioned author, "has as yet only been met with in the neighbourhood of Darjeeling. It was first described by Mr. Blyth in 1845, and the type specimen is still in the Calcutta Museum. Mr. Jerdon has certainly made a mistake in considering it to be the young of *A. euryzona*, which was, moreover, described as a distinct species by Mr. Blyth, under the name of *A. nigricans*. It was hardly possible, therefore, that so acute an observer should have separated *A. grandis*, and not have united it to *A. nigricans*, if they had both been the young of *A. euryzona*. Mr. Blyth has, however, himself written in defence of the species, and I can only state my full concurrence in his views.

"The type specimen came from Darjeeling, and the one from which the figure and description are now taken was also shot in the Darjeeling Terai, by a Shikaree in the employ of Dr. John Anderson, the well-known Curator of the Calcutta Museum, to whom I beg to tender my most hearty thanks for his great kindness in allowing this extremely valuable specimen (the only perfect one known) to be sent to England for the enhancement of my work."

The remarks by Mr. Blyth, alluded to above, are to the following effect:—"*Alcedo grandis*, nobis, from Sikhim, has been erroneously assigned to *A. euryzona*, Temm., of which *A. nigricans*, nobis, from Malacca, is the young. *A. euryzona* has white under-parts, crossed by a broad dark-green pectoral band (whence the name, which is quite inapplicable to the other), much as in the small *A. beryllina* (v. *biru*); whereas *A. grandis* is like *A. ispida* and *A. bengalensis*, but much larger, with the coronal spots of a paler and different blue, and no rufous on the ear-coverts." ('Ibis,' 1865, p. 30.)

I would here remark that Mr. Sharpe is himself in error when he states that Mr. Jerdon considered the *A. grandis* to be the *young* of *A. euryzona*; for, upon turning to the 'Birds of India,' vol. i. p. 231, I find that he regarded it as an *adult* of that species, an error which he corrected, on the authority of Mr. Blyth, in the appendix to the same work, vol. ii. pt. ii. p. 870.

Head and nape bluish black, crossed by a series of narrow interrupted bands of pale greenish cobalt, each with a small streak of silvery white in the centre; ear-coverts and stripe from the angle of the mouth down each side of the neck bluish black, striated with a pale tint of dark blue; on each side the neck a patch, which is yellow on its upper edge, and orange-buff on the remainder; back and upper tail-coverts glaucous or turquoise blue; wing-coverts greenish black, with a small spot of greenish blue at the tip of each; primaries and secondaries black, edged externally with dark greenish blue, and with rufous on the inner webs of the secondaries; tail dark indigo-blue above, black beneath; throat buffy white; the remainder of the under surface rich chestnut-red; bill black, inclining to horny at the tip; feet orange.

The figure, which is of the natural size, was taken from the perfect example above mentioned.



ALCEDO BENGALENSIS, *Gmel.*

J. Gould and H.C. Richter, del. et lith.

Walter & Cohn, imp.

ALCEDO BENGALENSIS, *Gmel.*

Indian Kingfisher.

Alcedo bengalensis, Gmel. Edit. Linn. Syst. Nat., tom. i. p. 450.—Bonn. et Vieill. Ency. Méth., Orn., part i. p. 291.—Shaw, Gen. Zool., vol. viii. part i. p. 102.—Id. Steph. Cont., vol. xiii. part ii. p. 103.—Sykes, Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. p. 84.—McClell. Proc. Zool. Soc., part vii. p. 156.—Jerd. Madras Journ. of Lit. and Sci., vol. xi. p. 231.—Pears. Journ. Asiat. Soc. Beng., vol. x. p. 636.—Gray and Mitch. Gen. of Birds, vol. i. p. 81.—Gray, Cat. of Spec. of Birds in Brit. Mus., part ii. sec. i. p. 63.—Id. Cat. of Spec. and Draw. of Mamm. and Birds pres. to Brit. Mus. by B. H. Hodgson, Esq., p. 57.—Blyth, Journ. of Asiat. Soc. Beng., vol. xv. p. 11.—Id. Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 49.—Bonap. Consp. Gen. Av., tom. i. p. 158.—Dr. F. B. Hamilton's MS., vol. i. p. 27.—Cass. Cat. of Halc. in Mus. Acad. Sci. Philad., p. 3.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. i. p. 129.—Kittl. Kupf. Vög., t. 29. fig. 2.—Cab. et Hein. Mus. Hein., Theil ii. p. 144.—Irby in Ibis, vol. iii. p. 228.—Swinh. in Ibis, vol. iii. pp. 31 & 328.—Bonap. Consp. Vol. Anisod. in Ateneo Italiano, no. 11, Agosto 1854.—Sieb., Temm. and Schleg. Faun. Jap., tab. xxxviii.

Alcedo hispidioïdes, Less. Compl. Buff., tom. ix. p. 345.

—— *hispidula*, Cat. of Rivoli Coll., pp. 2, 3.

—— *Bengalensis*, var. *Indica*, Reichenb. Handb., tom. i. p. 3, 3*a*, tab. 393. fig. 3047.

Ispida Bengalensis, Klein, Av., p. 34, no. 2.—Briss. Orn., tom. iv. p. 475.—Buff. Hist. Nat. des Ois., tom xiii. p. 297.

—— —— *minor*, Briss. Orn., tom. iv. p. 477.

Alcedo ispida Bengalensis, Sieb., Temm. et Schleg. Faun. Jap., p. 76.

—— *japonica*, Bonap. Consp. Vol. Anisod. in Ateneo Italiano, no. 11, Agosto 1854.

The Little Indian Kingfisher, Edw. Nat. Hist. of Birds, vol. i. pl. 11.

Chota Kilkila of the Hindoos (Jerdon).

Chota match-ranga of the Musselmans (Dr. F. B. Hamilton).

Seeta koona, Malwa (Boys).

Match-ranga of the Bengalese (Blyth and Hamilton).

Rajah whodan, Malay (Blyth).

Mal-pilli hudua (*piucki* or "small"), in Ceylon (Blyth).

Tow-yii-long of the Cantonese (Swinhoe).

If I were writing the history of the British Kingfisher (*Alcedo ispida*), I should state that the middle portion of Europe was probably the centre of its area of range, and that from thence it radiated westward to the British Islands, northwards to Norway and Sweden, southward to Morocco, and eastward to Asia Minor, and that, in the latter country, it inosculates with another species, the *Alcedo Bengalensis*, the subject of the present memoir. Here, then, the two species meet; but this appears to be the western limit of the Indian bird, its true habitat being Scinde, Bombay, and the whole of the Peninsula of India, wherever situations suited to its habits occur; thence it advances eastward to China and Japan, and southward through the Indian Islands to Timor, according to the authors of the 'Fauna Japonica.' Specimens from these widely extended localities present certain trifling differences both in size and colour, but not to the extent observable between the Indian and European species,—the *Alcedo Bengalensis* differing from the *A. ispida* not only in being considerably smaller in size, but more brilliantly coloured, and in the more decided character of the markings of its head and wing-coverts, these features being so apparent that the experienced ornithologist would have no difficulty in deciding at a glance to which country a specimen belonged, were his opinion required. I have said this much on the subject in order to prove the right of Asia to claim a true and distinct species of this form among her avi-fauna; but as the subject has been most carefully investigated by my friend Schlegel in the 'Fauna Japonica,' it is only justice to him to transcribe his remarks:—

"*The common Kingfisher of Bengal.*—This bird, which takes the place of the ordinary Kingfisher throughout a great part of southern and eastern Asia, does not appear to differ from that species except in its smaller size, and occasionally by the depth of the tints of its plumage. Some modern authors, regarding these differences of too little importance to serve as a means of specific distinction, have considered these birds as belonging to the same species, and have not even admitted the existence of several races of this bird. Putting on one side this question of nomenclature, we shall limit ourselves to record the observations we

have made upon these different birds, which offer to one another a striking resemblance with respect to the distribution of their tints. The ordinary Kingfisher (*Alcedo ispida* of authors—a species known throughout the whole world) is of the following proportions:—Length of wings, 2 inches 10 lines; length of beak, from the front, 1 inch 4 lines; breadth of beak, near the front, 3¼ lines; length of tail, 1 inch 4 lines; tarsi, 3¾ lines.

"The ordinary Kingfisher of Bengal (*Alcedo Bengalensis*, Gmelin, figured by Edwards, pl. 11, and by Kittlitz, Kupfertafeln, pl. 29. fig. 1) may be constantly distinguished from the common species by its less robust size and less squat form, although its beak may be a little longer than in the former. This little race has been observed at Bengal; our travellers have obtained a great number of individuals from Japan and Timor; and Kittlitz says that it is common in the Isle of Luçon, and that its habits are identically the same as those of the European race. We have before us a complete series of individuals received from Bengal, from Japan, and from Timor; these all exhibit slight but perceptible differences.

"Those from Bengal present the same gradation of tints as those of the common Kingfisher of Europe; but their wings do not exceed 2 inches 7 lines in length, the tail is 1 inch 4 lines, and the beak 1 inch 5 to 6 lines long.

"The individuals from Japan still more closely resemble those from Bengal with regard to the gradation of their tints; but they have the wings constantly a little longer, in that they measure 2 inches 8¼ lines long.

"Lastly, the individuals from Timor resemble those from Japan in the length of their wings; but they differ from them, as well as from those of Bengal, in the tints of the upper part of the bird, which are much more lively, of an almost perfect blue, and very little inclining to green, as seen in individuals from Japan and Bengal, as well as in the common European species."

I may here remark that the late Prince Charles Bonaparte regarded the Japanese bird as distinct, and that he therefore designated it *Alcedo Japonica* (see his paper in the 'Ateneo Italiano' for August 1854).

Colonel Sykes says, "This species affects brooks; it is never seen in gardens."

Mr. Pearson informs us that "It is frequently seen seated on a stick standing upright in a paddy-field, watching for small fishes in the shallow water."

From Dr. Francis Buchanan Hamilton's MS. we learn that "It builds its nest in holes, which it excavates in abrupt banks and mud walls."

The following brief notice of this bird occurs in the notes of the late Captain Boys:—"Frequents the mountain-streams and shady spots; is more frequently seen on the branch of a tree overhanging the water than on any projecting stone or stump in it. It flies with great rapidity and ease, generally very near the water. It is abundant near the cantonments at Nibon, each rivulet having a pair in about every two miles. It constantly remains at the same spot, unless forced to remove by necessity and the want of food. The sexes are alike in plumage; but that of the female is of a somewhat duller hue."

Mr. Swinhoe states that it is sometimes seen, but is not common, between Takoo and Pekin, in North China.

The male has the crown and nape and a stripe from the angle of the lower mandible deep-bluish green, transversely barred with bright verditer-green; plumage of the upper surface and wings bluish green; each of the wing-coverts with a spot of verditer-green at the tip; back and upper tail-coverts beautiful verditer-green; lores, space below the eye, ear-coverts, under wing-coverts, and under surface of the body reddish chestnut; behind the ear-coverts a streak of silky white; primaries and secondaries brown, margined externally with green; tail deep blue; irides brown; feet orange; bill black, lighter at the base of the under mandible.

The female is very similar; but the markings of the head and wings are not so fine, the base of the under mandible is lighter, and her general hue is duller than that of her mate.

In the immature bird the general colouring is less brilliant, and the upper surface and breast are clouded with olive-brown.

The figures represent two fully adults, of the natural size.



CORACIAS INDICA, *Linn.*

Gould del. & H.C.Richter, del. et lith.

Walter Imp.

CORACIAS INDICA, *Linn.*

Indian Roller.

Coracias Indica et *C. Bengalensis*, Linn. Syst. Nat., tom. i. p. 159, et auctorum.
Blue Jay from the East Indies, Edw. Glean. of Nat. Hist., pl. 326.
Indian Roller, Lath. Gen. Syn., vol. i. p. 412.
Bengal Roller, Lath. Gen. Syn., vol. i. p. 410.
Garrulas (Galgulus) nævius, Vieill. Nouv. Dict. d'Hist. Nat., tom. xxix. p. 431.
Galgulus nævius, Vieill. Ency. Méth. Orn., part ii. p. 868.
Coracias nævia, Wagl. Syst. Av., sp. 3.
Subzak (i. e. greenish-bird) and *Nylkhant* (blue-throat) of the Hindoos.
Tas of the Mahrattas.
Pálu pittá (i. e. milk-bird) of the Telugus.
Katta-kade, in Tamul.
Towee, by the Mahris.
Jay, Europeans in India.

To quote all the synonyms of the present species, and all that has been published respecting it is quite out of the question, inasmuch as the references to the various authors would occupy space which may be devoted to a more useful purpose, while much that has been written regarding its nidification, the colour of its eggs, and the extent of its range is erroneous; besides which there is much repetition in the accounts of those who have made it their theme. Why and wherefore so many persons have wielded the pen respecting it, is attributable to three causes:—First, its universal distribution over the whole of the Indian peninsula, from the base of the Himalayas to Cape Comorin, Afghanistan, and, according to Dr. Leith Adams, Ladakh and Thibet; that it is also a very common species in the Scinde valley I can testify, as I possess several specimens collected by my son, the late Dr. J. H. Gould, during his residence therein; and Mr. Layard tells us that it is widely distributed over Ceylon. Secondly, its extreme familiarity, and its *habit of perching* in some prominent position—such as the top of a pole, the bare branch of a tree, or on some low bush in groves and gardens in the immediate vicinity of villages; and, lastly, to the great beauty of its plumage, and the loveliness of the hues it displays during flight. If my readers will call to mind the habits and actions of the Common Flycatcher, *Butalis grisola*, and of some of the smaller *Halcyonidæ*, they will be able to form a just notion of those of the present bird, since they resemble both, particularly in the upright manner in which it sits on its elevated perch, and sallies forth thence when any living object for which it has a preference attracts its eye, whether it be a grasshopper on the ground, or an insect in the air; after capturing which it generally returns to eat its prey on the site it has just left. Like all other Rollers, a portion of its food consists of insects, caterpillars of various kinds, and occasionally mice, small lizards, and other creeping reptiles.

In confirmation of what I have said as to the abundance of this bird, I may mention that between three and four hundred flat skins were shown to me on the 10th of March, 1869, by a plumassier of Oxford Street, which, he said, had just arrived from India, adding that these were only a continuation of former sendings, and that hundreds more would probably follow. Now it must be a source of regret to all right-minded persons, as it is to myself, to learn that, under such a course of destruction, the annihilation of this beautiful bird is almost certain, unless a law be promulgated in India similar to that which we may hope is about to be passed for the protection of some of our own birds.

I have averred that some of the statements respecting the nidification and colouring of the eggs of the Indian Roller are erroneous; in proof of which I may mention that by one writer it is said to make a nest of twigs and grasses, and to have Antwerp-blue eggs; while by another they are described as green, profusely speckled with dark brown spots. But, as every ornithologist would naturally expect, they are, really, pinky white before being blown, and enamelled white, like the glazed paper upon which I am writing, after the yelk has been removed, and are deposited in the hollows of trees.

As with all other Rollers, there is but little, if any, difference in the colouring of the sexes. During the breeding-season the bird is very noisy and garrulous, a circumstance which renders its whereabouts easily detectable.

"The Indian Roller," says Mr. Jerdon, "is of universal distribution throughout the country. It frequents, alike, open jungles, groves, avenues, gardens, clumps of trees in the open country, and, except in thick forest, is to be found everywhere, and is sure to be met with about every village. It generally perches on

the top or outermost branch of a tree; and, on spying an insect on the ground, which it can do at a very great distance, it flies direct to the spot, seizes it, and returns to its perch to swallow it. A favourite perch is a bowrie pole or some leafless tree, whence it can see well all around; also old buildings, a hay-stack, or other elevated spot; sometimes a low bush, or a heap of earth, or of stones. When seated it puffs out the feathers of its head and neck. I have, on several occasions, seen one pursue an insect in the air for some distance; and when the winged termites issue from their nest after rain, the Roller, like almost every other bird, catches them on the wing. It flies, in general, with a slow but continued flapping of its wings, not unlike the Crow, though more buoyant; but it has the habit of occasionally making sudden darts in the air in all directions. Its food is chiefly large insects, grasshoppers, crickets, mantidæ, and even beetles, occasionally a small field-mouse or shrew.

"The Roller has a very harsh, grating cry or scream, which it always utters when disturbed, and often at other times also. It is frequently selected for the quarry of the *Turumti* Falcon (*Falco chicquera*) which pursues it most closely and perseveringly, but is often baulked by the extraordinary evolutions of the Roller, who now darts off obliquely, then tumbles down perpendicularly, screaming all the time, and endeavouring to gain the shelter of the nearest tree or grove. But even here he is not safe, the Falcon follows him from branch to branch, drives him out again, and, sooner or later, the exhausted quarry falls a victim to the ruthless bird of prey.

"It breeds towards the end of the hot weather and beginning of the rains, in holes of trees, old walls, old pagodas, laying three or four round rather pure white eggs. Captain Irby says it breeds in the roofs of houses in Oudh, as well as in holes of trees, and that it sometimes makes a hole for its nest in the thatch of bungalows. I have not seen it so familiar in the south of India; but Adams also states that it breeds in the thatch of bungalows, and in chimneys. It is very pugnacious and quarrelsome in the breeding-season.

"The *Nilkhant* is sacred to *Siva*, who assumed its form; and at the feast of the Dasserah, at Nagpore, one or more used to be liberated by the Rajah, amidst the firing of cannon and musketry, at a grand parade attended by all the officers of the station.

"Buchanan Hamilton also states that before the Durga Puja the Hindoos of Calcutta purchased one of these birds, and, at the time when they throw the image of Durga into the river, set the *Nilkhant* at liberty. It is considered propitious to see it on this day; and those who cannot afford to buy one, discharge their matchlocks to put it on the wing. The Telugu name of the Roller, signifying Milk-bird, is given, because it is supposed that when a cow gives little milk, if a few of the feathers of the bird are chopped up and given along with grass to the cow, the quantity will greatly increase. It is one of the birds on whose movements many omens depend. If it cross a traveller, just after starting, it is considered a bad omen."

Mr. Blyth states that it is very "common in the vicinity of Calcutta, but for the most part disappears at the time of the rains. Its flight is buoyant, but sustained by constant flapping; and I have now and then seen one or a pair, when seeming about to alight on a tree, make a rapid dive downwards to near the ground, re-ascend, and perform this manœuvre several times successively, as if in play. It sits very upright on its perch, with the body-feathers appressed and those of the head and neck puffy. Its usual note is harsh; but in spring the male utters a very pleasing dissyllabic cry, repeated at intervals."

The Rev. J. Philipps, as quoted by Messrs. Horsfield and Moore, says, "When attacked by a Hawk it shows great agility, by twisting itself at the moment of the Hawk's stoop, and, when caught, often seriously wounds the legs of its captor with its powerful beak. The natives say that it sometimes breaks the Hawk's legs; and it certainly has done so in the case of the *Shikra* (*Micronisus badius*).

"I once observed this bird flying steadily forward, when presently it dived with a sudden twist after an insect which had attracted its attention some yards beneath, seized it, and pursued its course."

Crown and nape dull bluish green, passing into bright verditer blue over each eye; forehead tawny purple, washed with purple above; back of the neck vinous brown; back, scapularies, interscapularies, and tertiaries greyish-brown, glossed with green; lower part of the back and upper tail-coverts blue; lesser wing-coverts deep cobalt blue, middle coverts bluish green; greater coverts bright light blue; primaries deep blue at the base, crossed by a band of verditer blue in the middle, with black shafts, tips black, washed with blue on the outer webs; under surface of the wing light verditer blue, crossed at the base of the primaries by an oblique band of deep rich blue; two centre tail-feathers green, the remainder deep blue at the base and tip, the intervening space being verditer blue, with black shafts; chin, throat, and breast vinaceous purple, with a stripe of pale fulvous down the centre; lower part of the abdomen, vent, and under tail-coverts light blue; bill dark brown; legs dull orange-yellow; irides dark reddish-brown; eyelids yellow.

The figure is of the natural size.



CORACIAS AFFINIS. *M.c Coll.*

J.Gould & H.C.Richter del. et lith. Walter Imp.

CORACIAS AFFINIS, *McClell.*

Burmese Roller.

Coracias affinis, McClell. in Proc. of Zool. Soc., 1839, p. 164.—Gray, Gen. of Birds, vol. i. p. 62. pl. xxi. *Coracias*, sp. 8.—Blyth, Journ. Asiat. Soc. Beng., vol. xiv. p. 190, and vol. xix. p. 228.—Id. Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 51.—Horsf. and Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. ii. p. 574.—Jerd. Birds of India, vol. i. p. 217.—Cab. et Heine, Mus. Hein., Theil ii. p. 118.—Gould in Proc. of Zool. Soc., 1859, pp. 150, 151.—Schomb. Ibis, 1864, p. 246.

——— *katnas*, F. (B.) Hamilton, MS., vol. ii. p. 123.

Katnas, Gualpara, F. (B.) Hamilton.

Nghet-kha, Arracan, Capt. Abbott.



Both Mr. Blyth and Mr. Jerdon believe that, where the *Coracias Indica* and *C. affinis* inosculate, an interbreeding frequently takes place, since specimens partaking of the colouring of both are often met with. We know that such an intermixture occasionally occurs with some few other species; but this must be regarded as quite exceptional, and not the rule. When it does, it is mostly among the Gallinaceæ, whose hotter blood renders them more salacious than insessorial birds. On the interbreeding of the *C. Indica and C. affinis* Mr. Blyth has published some remarks which I take the liberty of transcribing, as I also do the accounts given of the latter species by Mr. Jerdon, Dr. Francis Buchanan Hamilton, and Sir Robert Schomburgk.

"The numerous specimens of Rollers from Assam, Arracan, and Tenasserim which I have seen," says Mr. Blyth, "all pertain strictly to this species, having the upper parts greener than in *C. Indica*, the neck and breast, devoid of the reddish-brown colour proper to the latter species, being purplish-dusky, varied with bright purple on the fore neck; and the entire under surface of the wing, except near the tips of the primaries, is deep purple; but I have obtained several specimens in the vicinity of Calcutta, and some from Tipperah, which present every gradation of plumage from one to the other of these species, and also some in the pure *C. affinis* plumage; from which I infer that, where found together in the same locality, they not unfrequently interbreed, and tend to merge into a single blended race. It may be further remarked that I have never seen an example of the true *C. affinis* with the broad purple terminal band to the tail, which distinguishes the adult of *C. Indica*; but I have seen this imperfectly developed in the mixed race, which latter has also commonly the fore part of the under surface of the wing intermingled purple and verditer."

Dr. F. Buchanan Hamilton mentions, in his MS., that "this bird is very common at Gualpara throughout the year, the natives considering it as distinct from the *Nil-khaut*."

"This species," says Mr. Jerdon, "chiefly differs from the Indian one in the upper parts being greener, the neck and breast without any reddish-brown, being dusky purplish varied with bright purple, and in the wing being deep purple; it also wants the broad terminal purple band to the tail.

"The Burmese Roller is the only one found to the east of the Bay of Bengal, and in Assam, but it spreads into the Sunderbunds, Tipperah, and even the neighbourhood of Calcutta itself, where it mingles and interbreeds with the Indian Roller. Blyth has procured many specimens, which present every gradation of plumage from one to the other. The same intermingling of affined species takes place in the Green Pigeons of the south and north of India, and in several other birds. It does not differ in its habits or voice from the Indian Roller; those which I saw in Burmah were decidedly more wary and less familiar than the Indian bird."

Sir Robert Schomburgk states that "this handsome bird, the *Nook tackah* of the Siamese, is dressed in blues of all shades, azure and smaragdinous included, shading off into green and grey. His greatest enemies are the Crows. The bird is by no means uncommon in the gardens attached to the houses in Bangkok; but scarcely have the Crows in the vicinity discovered one before they make a simultaneous attack upon him. The Roller endeavours to avoid them, now by making gyrations in the air, and then by alighting upon the branch of a tree, uttering all the time pitiful cries; nor are his tormentors satisfied until he leaves the grounds. The beautiful blue wing-feathers of this bird, principally the primaries and scapularies, are exported to China for tiny fans; into which they are also manufactured in Siam, but they are not so well made as those that come from China."

The bird figured on the accompanying Plate, from Assam specimens, will be readily recognized as a distinct species by every ornithologist. It will be seen that there is not the slightest indication of the terminal band on the tail which is so conspicuous in *Coracias Indica*; the throat also is more blue, and in certain positions that colour is also visible on the abdomen, while in others it is inclined to verditer green.

Crown of the head and nape bluish green, bordered over the upper mandible and along the lores with buff, and above the eyes with bright verditer; back of the neck, back, and scapularies olive green; lower part of the back deep blue, each feather tipped with verditer blue; upper tail-coverts verditer blue; lesser wing-coverts deep blue; greater coverts of the primaries and spurious wing bright verditer blue; coverts of the secondaries dull greenish blue, becoming of a purer blue at the base; primaries deep rich blue, crossed towards the tip with a broad band of verditer blue, which is brightest on the external web, beyond this the tip is blue, shading into dull black at the extremity, shafts black; secondaries deep blue, with a band of verditer blue on the middle of the outer web only; tertiaries olive green; lores and throat purplish brown, passing into fawn-colour on the breast; the darker feathers of the sides and base of throat have a stripe of buff, and those in the centre of the throat a line of bright blue down the shaft; under wing-coverts deep blue; lower part of the abdomen greenish blue, passing into the dull verditer blue of the vent and under tail-coverts; two middle tail-feathers dull green; the remainder deep blue, largely tipped with pale verditer blue; shafts black; bill black; legs and feet dusky yellow; irides reddish-brown.

The sexes present no appreciable difference in their colouring

The figure of this fine species is of the size of life.



CORACIAS TEMMINCKI.

J.Gould & H.C.Richter del. et lith.

Walter Imp.

CORACIAS TEMMINCKI, *Wagl.*

Temminck's Roller.

Coracias Temminckii, Wagl. Syst. Av., p. 215.—Gray, Gen. of Birds, vol. i. p. 62, *Coracias*, sp. 5.—Id. List of Spec. of Birds in Coll. Brit. Mus., part ii. sect. i. *Fissirostres*, p. 33.—Bonap. Consp. Gen. Av., tom. i. p. 167, *Coracias*, sp. 8.—Cab. et Heine, Mus. Hein., Theil ii. p. 118.—G. R. Gray in Proc. of Zool. Soc., 1861, p. 433.—Wall. Ibis, 1864, p. 41.

Rollier Temminck, Levaill. Hist. Nat. Prom. et Guêp., tom. iii. p. 46, tab. D.

Garrulus (Galgulus) Temminckii, Vieill. Nouv. Dict. d'Hist. Nat., tom. xxix. p. 435.

Galgulus Temminckii, Vieill. Ency. Méth. Orn., part ii. p. 869.

Coracias Urvillei, Quoy et Gaim. Voy. de l'Astrol. Ois., tab. 16.

——— *Papuensis*, Quoy et Gaim. ib., p. 220.—Sclat. in Journ. of Proc. of Linn. Soc., Zool. vol. ii. p. 155

——— *pileata*, "Reinw." Bonap. Consp. Vol. Anis., p. 8. Gen. 87. no. 210.

——— *pileata*, Reinw.? Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 50.

In reply to an inquiry "After whom was this very beautiful bird named?" the Professor of Natural History to future generations will say, "Conrad Jacob Temminck, a Dutch gentleman who lived in the latter part of the eighteenth and the early part of the nineteenth centuries, who devoted his whole life and much of his private fortune to the advancement of the science of ornithology, and under whose direction and fostering care the fine Museum at Leyden was rendered so rich in zoological stores as scarcely to be surpassed, if equalled, by any other in existence;" and he may add that "whatever was done by Temminck for the national Museum of his native country, no less a share of merit is due to his German coadjutor and successor, the more profoundly learned Dr. Hermann Schlegel, who laboured so assiduously that he rendered that celebrated collection one of the most perfect extant at the time."

It rarely happens that one of the finest species of a genus is selected to bear the name of a scientific man as its specific designation; but such is the case in the present instance; for it may be truly said that not a finer species of *Coracias* has yet been discovered. Its native countries are the Celebes and Moluccas, whence fine examples were brought by Mr. Wallace, one of which, now in my own collection, is from Macassar. I regret to say that, although more than fifty years have elapsed since the discovery of this bird, very little information has been placed on record respecting its habits, manners, or economy; in fact, the only reference to them that I can find is comprised in the following extract from Mr. Wallace's "Remarks on the value of Osteological Characters in the Classification of Birds," published in 'The Ibis' for 1864:—"For determining the true affinities of isolated groups we must have recourse to those characters which, having no direct dependence upon habits &c., are often persistent in a remarkable degree. Of these, no doubt the sternum is of the greatest value; but there are many others of almost equal importance. Such are:—the texture of the plumage; the form of the feathers, and their arrangement over the surface of the body; the form of the nostrils; the scutellation of the tarsi; the mode of nidification, with the form, colour, and texture of the eggs; the covering of the young bird, and its change of plumage; peculiarities of food, characteristic habits and peculiar attitudes and actions. As an instance of the value of such apparently trifling characters as the last, I may mention that the first time I saw a Roller (*Coracias Temminckii*) alive I was at once satisfied that it was a fissirostral bird, from a peculiar jerking motion of the head and tail when it alighted, which is common to Kingfishers, Bee-eaters, and Motmots, but never seen in the typical Passeres."

I have followed most of my confrères in placing *Coracias Papuensis* of Quoy and Gaimard among the synonyms of the present species; but Mr. Sclater, in his paper on the "Zoology of New Guinea," read at the meeting of the Linnean Society on the 17th of December, 1857, and published in the Journal of their Proceedings above referred to, remarks, "the two species must be accurately examined and compared before their identity can be considered unquestionable."

Mr. G. R. Gray in his "Remarks on, and Descriptions of, new Species of Birds lately sent by Mr. A. R. Wallace, from Waigiou, Mysol, and Gagie Islands," published in the 'Proceedings of the Zoological Society' for 1861, gives New Guinea as the habitat of this species; but this, I presume, is an error, since Mr. Wallace's specimens were obtained at Macassar, and Mr. Blyth states emphatically that it is Celebes, and *not* New Guinea.

Crown of the head, nape, and upper tail-coverts verditer green; back and scapularies brownish olive-green; wings, tail, and lower parts of the back deep blue, brightest on the shoulder; back of the neck and all the under surface dark greyish blue, approaching to black, the feathers of the throat having a fine line of blue down the centre; bill black; feet brown.

The Plate represents two birds, of the size of life. The frog is the *Hyla Reinwardtii*, and the plant the *Hoya fraterna*.



EURYLAIMUS JAVANICUS, Horsf.

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton, imp.

EURYLAIMUS JAVANICUS, *Horsf.*

Javanese Eurylaime.

Eurylaimus Javanicus, Horsf. in Linn. Trans., vol. xiii. p. 170.—Ib. Zool. Res. in Java, pl. 5.—Lath. Gen. Hist., vol. iv. p. 96.—Vig. App. to Mem. of Sir S. Raffles, p. 653.—Less. Man. d'Orn., tom. i. p. 175.—Ib. Traité d'Orn., p. 261.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 195.—Bonap. Consp. Gen. Av., p. 168.—Gray and Mitch. Gen. of Birds, vol. i. p. 65, *Eurylaimus*, sp. 1.—List of Birds in Brit. Mus. Coll., part ii. sec. 1. p. 36.—Horsf. Cat. of Birds in Mus. East Ind. Comp., p. 116.

Eurylaimus Horsfieldi, Temm. Pl. Coll. 130, 131.—Swains. in Jard. Nat. Lib. Orn., vol. x. Flycatchers, p. 240. pl. 30.

Platyrhynchos horsfieldi, Vieill. Gal. des Ois., tom. i. p. 200. pl. 125.

Tamplana Lilin, Malays.

Although the singularly fine bird figured in the accompanying Plate—the type of Dr. Horsfield's genus *Eurylaimus*—has now been known for many years, nothing has yet been recorded respecting its habits and economy.

The only note respecting it which has come under my observation is the one by Dr. Horsfield in the 13th volume of the Linnæan Transactions, where he remarks, "I discovered this species in one of the most distant and inaccessible parts of Java, covered with extensive forests, and abounding with rivers and marshes."

Independently of Java, it is now known to inhabit the great island of Borneo on the one side, and the Malayan peninsula, from Singapore to Tenasserim, on the other; future research will probably inform us that it enjoys a still further range.

Among the specimens at the East India House is an immature one from Tenasserim, presented by Mr. Helfer, which exhibits a state of plumage quite different from that of the adults: it is described below.

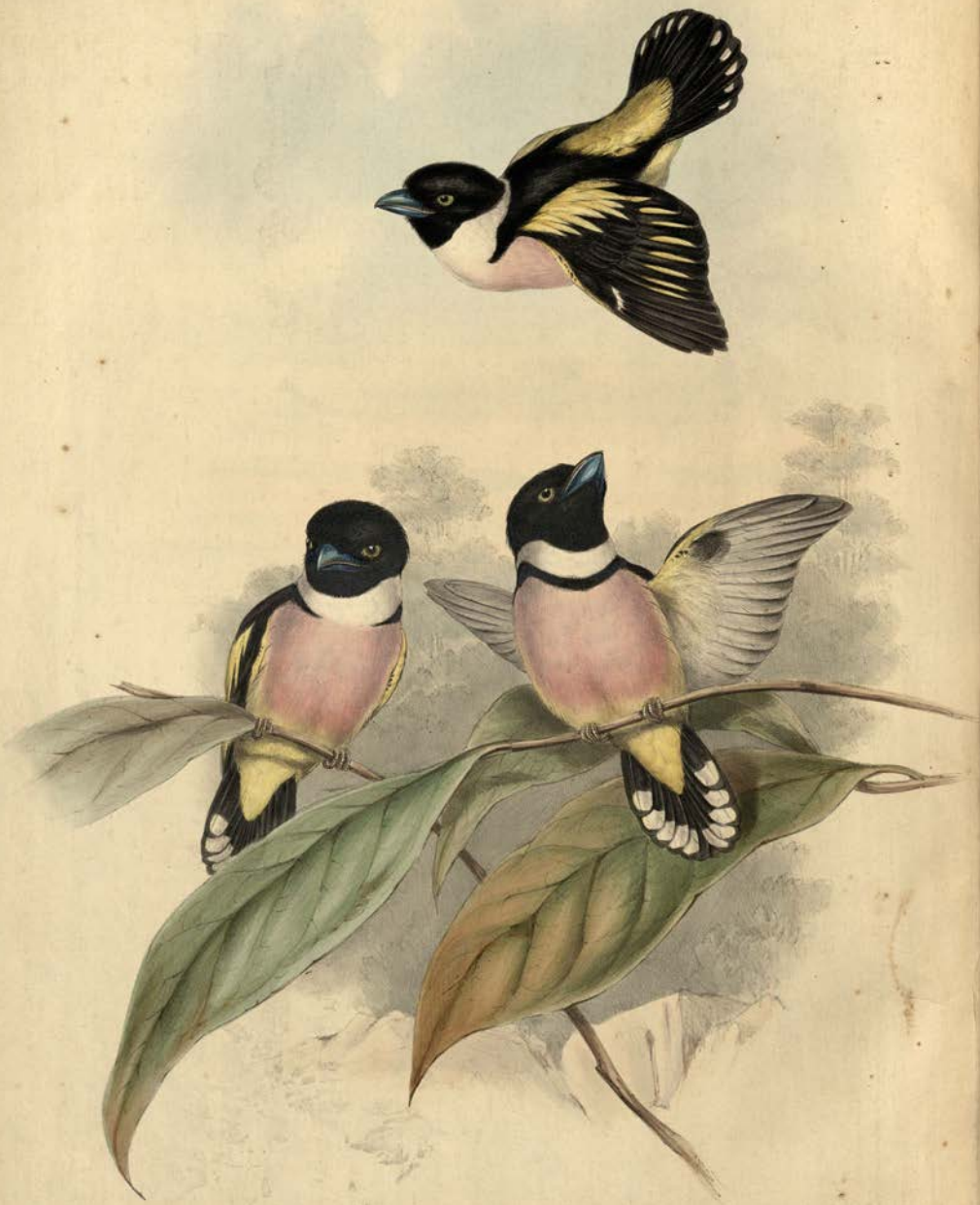
Fully adult individuals also differ, some being entirely destitute of the black pectoral band. This conspicuous band is doubtless a sexual characteristic; in all probability the specimens in which it is wanting are females.

"The colouring of the head and neck," says Mr. Swainson, "is very peculiar, and is so mixed and blended as not to admit of an easy definition.

"The top and sides of the head are of a chestnut black, graduating into a shade of cinereous on the nape, and of vinaceous red on the ears and sides of the throat; this changes to dark brown on the lower part of the neck above and then into deep black, which is the ground colour of the remaining upper plumage;" down the centre of the back a series of yellow feathers narrowly edged with black; upper tail-coverts largely tipped with yellow; lengthened scapularies yellow with black bases; edges of the shoulders and the under wing-coverts yellow; wings black, the feathers of the secondaries with a lengthened mark of yellow along their outer web near the tip, forming a broad band when the wing is closed; at the base of the primaries a mark of yellowish white; tail black, the outer feather on each side crossed near the tip by a broad band of sulphur-white; the next four on each side with a large spot of yellowish white on the inner side near the tip, decreasing in size as the feathers approach the two middle ones, which are entirely black; throat vinous red, bounded below by a narrow line of black, posterior to which is a wash of olive; under surface dark vinaceous blood-red; thighs black; under tail-coverts dull vinaceous yellow; bill apparently deep bluish green.

In the young bird above referred to, the general colour is vinous brown, becoming paler on the head and under surface; all the feathers, particularly those of the back, wings and tail-coverts, conspicuously streaked with yellow.

The Plate represents a male, a female, and the young of the size of life.



EURYLAIMUS OCHROMALUS. *Raff*

J. Gould and H. C. Richter del. et lith.

Hullmandel & Walton Imp.

EURYLAIMUS OCHROMALUS, *Raff.*

Hooded Eurylaime.

Eurylaimus ochromalus, Raff. Trans. Linn. Soc., vol. xiii. p. 297.—Vig. App. to Mem. of Sir S. Raffles, p. 653.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 195.—Gray and Mitch. Gen. of Birds, vol. i. p. 65, *Eurylaimus*, sp. 2.—Bonap. Consp. Gen. Av., p. 168, *Eurylaimus*, sp. 2.—G. R. Gray, List of Birds in Brit. Mus. Coll., part ii. sec. 1. p. 36.—Horsf. Cat. of Birds in Mus. East Ind. Comp., p. 116.

——— *cucullatus*, Temm. Pl. Coll. 261.

——— *Rafflesii*, Less. Compl. Buff., tom. viii. p. 463

——— *capistratus?* Mus. Lugd.

Tamplana gilin, Malays.

This elegant species, like the *Javanicus*, is a typical Eurylaime, and moreover inhabits all the countries mentioned as the native haunts of that bird, namely, Tenasserim, Malacca, Java and Borneo.

As in the *E. Javanicus*, I find some of the adults of this species with and others without a black pectoral band; the specimens in the latter state in my own Collection are marked as females, it therefore seems pretty certain that the black chest-mark is a characteristic of the opposite sex.

The delicate tint which pervades the breast and the contrasted black and yellow of the upper surface must render this species a most conspicuous object in its native woods. Judging from the form of its bill, it would appear to feed upon berries and fruits, to which insects and their larvæ are doubtless added.

The male has the head and chin, shoulders, collar across the breast, sides of the back, wings and tail black; around the neck, between the black chin and the black pectoral band, a band, broad in front and narrow behind, of a very delicate pinky white, the pinky hue increasing on the lower edge; down the centre of the back a series of sulphur-yellow feathers occasionally streaked with black; upper tail-coverts mingled black and yellow; scapularies streaked with black and yellow, the latter colour predominating; secondaries margined externally with yellow; at the bases of the primaries a spot of yellowish white; all the tail-feathers with a large spot of white on the inner side near the tip; under wing-coverts yellow, with a spot of black near the insertion of the primaries; breast vinaceous lilac, becoming gradually deeper on the abdomen; flanks, vent and under tail-coverts yellow; thighs black; upper mandible very dark green, merging into blue at the base and inclining to dark brown on the edge; under mandible blue; eye very pale yellowish; legs reddish flesh-colour.

The colouring of the soft parts is taken from a drawing at the East India House, which I believe to be correct; if so, it appears that the bill changes from green in the living bird to reddish in the preserved skin.

In the female the black pectoral band is wanting; there is a smaller amount of yellow on the upper surface; and the spots on the tail-feathers are smaller and of a yellow hue.

The figures are of the size of life.



CYMBIRHYNCHUS MACRORHYNCHUS.

J. Gould and H.C. Richter del. et lith. Hullmandel & Walton Imp.

CYMBIRHYNCHUS MACRORHYNCHUS.

Great-billed Eurylaime.

Todus macrorhynchus, Gmel. Edit. Linn. Syst. Nat., tom. i. p. 446.
Todus nasutus, Lath. Ind. Orn., tom. i. p. 268.
Cymbirhynchus nasutus, Vigors's App. to Mem. of Sir S. Raffles, p. 654.—Swains. in Jard. Nat. Lib., vol. x. Fly-catchers, p. 237, pl. 29.—Blyth, Journ. Asiat. Soc. Beng., 1846, p. 311.—Ib. Cat. of Birds in Mus. As. Soc. Calcutta, p. 195.—G. R. Gray, List of Birds in Brit. Mus. Coll., part ii. sec. 1. p. 38.
Eurylaimus lemniscatus, Raffl. Linn. Trans., vol. xiii. p. 296.
Eurylaimus nasutus, Temm. Pl. Col. 154.—Less. Man. d'Orn., tom. i. p. 175.
Platyrhinchus ornatus, Desm. Hist. Nat. des Tangaras, &c.
Erolla nasica, Less. Traité d'Orn., p. 260.
Cymbirhynchus macrorhynchus, Gray and Mitch. Gen. of Birds, vol. i. p. 66.—Bonap. Consp. Gen. Av., p. 169.
Great-billed Tody, Lath. Gen. Syn., vol. ii. p. 664, pl. 30.—Ib. Gen. Hist., vol. iv. p. 94, pl. lxv.—Shaw's Gen. Zool., vol. viii. p. 122.

This beautiful species was probably the first of the *Eurylaiminæ* sent to Europe; for although apparently unknown to Linnæus, it was described by Gmelin towards the end of the last century; subsequently Latham and Shaw may be enumerated among the older writers who have noticed it; when the Leverian Museum was in existence the specimen contained therein was supposed to be unique; and such is the recorded history of a species of which specimens are now to be found in every Museum. From its singular structure and rich colouring few of the birds of Tropical India are more conspicuous and interesting than the *Cymbirhynchus macrorhynchus*. Its range extends over the rich country of Sumatra, the Malayan Peninsula and Malacca, few collections being sent from the latter country which do not contain examples; and Mr. Blyth states that it is also found in the more northern country of Tenasserim, specimens from whence, procured by Mr. Helfer, grace the collection at the East India Company's House in Leadenhall Street. Sir T. Stamford Raffles states that it "is found in the interior of Sumatra, frequenting the banks of rivers and lakes, and feeding on insects and worms. It builds its nest pendent from the branch of a tree or bush which overhangs the water, and is said to lay only two eggs."

Mr. Blyth says it "is common in Tenasserim, in watery situations, and suspends its nearly globular nest, which is constructed of small twigs, from the branches of trees growing directly out of the water. The eggs are four in number, and pale spotless blue. The beak and eyes are very beautiful blue, the former fading within a day or two after death."

I am indebted to the Honourable East India Company for permission to take notes from a well-executed drawing of the soft parts of this species, which having been made in India, may, I presume, be depended upon; the bill is there represented of a beautiful blue, as stated by Mr. Blyth; but the full round eye, instead of being blue, is of the richest deep grass-green. It is said that these hues fade immediately after death, and that the colouring of the bills and legs of the specimens which reach this country is altogether different from those of the living birds; in most instances the upper mandibles have become black, while the under one is inclined to blood-red; in other examples both mandibles are of a uniform dark hue; in all probability the richly coloured bill assumes different tints according to the season and the age of the bird.

Head, upper surface, wings, tail, chin and a band across the breast deep black, obscurely glossed with green; transverse band across the throat, ear-coverts, all the under surface, rump and upper tail-coverts deep crimson; the feathers of the throat are rigid and project on the sides below the ear-coverts, where they are slightly fringed with pearly white; under wing-coverts straw-yellow; a line of orange along the edge of the shoulder; lengthened lanceolate scapularies white, the longest narrowly edged with white on their posterior webs; the three lateral tail-feathers on each side have an obliquely placed oblong spot of white near the tip of their inner web.

The Plate represents two birds of, I believe, the opposite sexes; if this opinion be correct, it will be seen that little or no difference occurs in their plumage.



CYMBIRHYNCHUS AFFINIS. *Blyth*

Gould and H.C. Richter del. et lith. *Hullmandel & Walton, Imp.*

CYMBIRHYNCHUS AFFINIS, *Blyth.*

Allied Eurylaime.

Cymbirhynchus affinis, Blyth, Journ. Asiat. Soc., vol. xv. p. 312.—Ib. Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 195.

The discovery of a second species of a form only one of which had been previously known is always interesting; hitherto the *Cymbirhynchus macrorhynchus* stood alone, and it is to Mr. Blyth that we are indebted for the description, if not for the discovery, of another species of this singular form.

The example from which my figure was taken was obligingly lent to me by H. E. Strickland, Esq., to whom it had been presented by Mr. Blyth. This latter naturalist has so ably pointed out the characters distinguishing the *C. affinis* from the *C. macrorhynchus*, that I cannot perhaps do better than transcribe the entire passage from one of the many valuable papers communicated by him to the Journal of the Asiatic Society of Bengal, with the trifling alteration of substituting the original appellation of *macrorhynchus* for the more recent one of *nasutus* employed by him.

"In this, while the general character and colouring are the same as in *C. macrorhynchus*, the bill is invariably much smaller and flatter, as in the restricted *Eurylami*, but the nostrils are placed forward as in the other. The general dimensions are also less, the usual length of wing in *C. affinis* being three inches and a half, rarely three and five-eighths, and the middle tail-feathers three inches; in *C. macrorhynchus* the wing measures three and seven-eighths to four inches, and the tail three and five-eighths to three and three-quarters. *C. affinis* has also, constantly, an oblong red spot margining the tip of the outer web of two of its tertiaries, and a third margining the inner web of the uppermost tertiary; in what appear to be the females the latter spot is red, as in the supposed males, while the former are white; these spots do not occur in *C. macrorhynchus*. Lastly, the white upon the tail is more developed in *C. affinis*, and placed nearer the tips of the feathers: a white spot at the base of the inner primaries is also larger and more conspicuously shown."

At present Mr. Strickland's specimen is the only one in this country, consequently examples would be most welcome to the Collection at the East India House from any of the Company's officers who may have an opportunity of procuring them. According to Mr. Blyth, Aracan is the natural habitat of the species.

The figures are of the natural size.



EURYDON SUMATRANUS.

CORYDON SUMATRANUS.

Great Eurylaime.

Coracias Sumatranus, Raffl. Linn. Trans., vol. xiii. p. 303.
Eurylaimus Corydon, Temm. Pl. Col. 297.—Less. Traité d'Orn., p. 261.—Atlas, pl. 50. fig. 1.
Eurylaimus ? Hay, Journ. As. Soc., vol. x. p. 575.
Corydon Sumatranus, Strickl. Ann. and Mag. Nat. Hist., vol. vi. p. 417.—Blyth, Cat. of Birds in Mus. of As. Soc. Calcutta, p. 195.—Bonap. Consp. Gen. Av., p. 168.
Corydon Temminckii, Less. Man. d'Orn., tom. i. p. 177.
Eurylaimus Sumatranus, Vig. App. to Mem. of Sir S. Raffles, p. 653.—Gray and Mitch. Gen. of Birds, vol. i. p. 65, *Eurylaimus*, sp. 6.—G. R. Gray, List of Birds in Brit. Mus. Coll., part ii. sec. 1. p. 37.
Eurylaimus Corydon Sumatranus, Horsf. Cat. of Birds in Mus. in East Ind. Comp., p. 117.
Kung-quait, Malays.

The tropical portions of India and the adjacent islands are without question the head quarters of the *Eurylaiminæ*, for like *E. Javanicus* and *E. ochromalus*, the present extraordinary bird is there found, the provinces it inhabits being Tenasserim, the Malayan peninsula generally, Sumatra, and I believe Borneo. It is the largest species of the family yet discovered, and also differs from all its congeners in the absence of adornment in its plumage, the sooty black hue of which is merely relieved by a large blood-coloured patch on the back and the dingy brownish white patch on the throat.

The female is said so nearly to resemble the male in colour as not to be distinguished.

The extraordinarily broad and strong bill, its greatly dilated margins and other peculiarities naturally suggested the propriety of separating this bird from the other members of the family, and of making it the type of a new genus, *Corydon*, in which at present it stands alone, no other species of the form having been discovered. The singularly formed mandibles and enormous gape would seem to indicate some great peculiarity in its mode of life, with which it would be interesting to be made acquainted.

Insects and fruits doubtless constitute the food of this curious bird, but of what kinds is uncertain, for we have everything yet to learn respecting its habits and economy.

General plumage brownish black; on the throat a large patch of brownish white, each feather with a crescent mark of reddish brown at the tip; on the centre of the back a small patch of red feathers with black tips, and a whitish line down their centres; lateral tail-feathers crossed near the tip with an oblique irregular mark of white; orbits and bill fleshy red.

The figure is of the natural size.



SERILOPHUS LUNATUS, *Gould*

J. Gould and H.C. Richter, del. et lith.

Hullmandel & Walton, Imp.

SERILOPHUS LUNATUS, *Gould.*

Lunated Eurylaime.

Eurylaimus lunatus, Gould in Proc. of Zool. Soc., part i. p. 133,—Ib. in Trans. Zool. Soc., vol. i. p. 175. pl. 25.—Gray and Mitch. Gen. of Birds, vol. i. p. 65, *Eurylaimus*, sp. 3.—G. R. Gray, List of Birds in Brit. Mus. Coll., Part II. sec. 1. p. 37.

Serilophus lunatus, Swains. in Jard. Nat. Lib. Orn., vol. x. Flycatchers, p. 242.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 196.—Bonap. Consp. Gen. Av., p. 169, *Serilophus*, sp. 1.

Eurylaimus serilophus lunatus, Horsf. Cat. of Birds in Mus. East Ind. Comp., p. 118.

Serilophus lunulatus, Swains. Class. of Birds, vol. ii. p. 262.

I HAD the pleasure of making this beautiful species known to science twenty years ago, in a paper read at the meeting of the Zoological Society held on the 10th of December 1833, my characters being taken from specimens which had been shot in the neighbourhood of Rangoon by Major Godfrey. This paper, with some observations on the other members of the genus, was subsequently published in the first volume of the Society's Transactions, on reference to which it will be seen that I pointed out the several characters in which it differs from them; I did not at the time, however, consider these of sufficient importance to warrant its separation into a distinct genus; other naturalists have taken a different view of the matter, and it now stands in all recent works as *Serilophus lunatus*.

Major Godfrey informed me that it inhabited the thickest jungles, and that its food was found, upon minute examination, to consist entirely of berries and fruits; he did not ascertain any particulars respecting its nidification.

"Dr. Helfer informs us, in his MS. notes," says Dr. Horsfield, "that he observed these birds in societies of thirty to forty, upon the loftiest trees of the forests in the Tenasserim provinces, and that they are so very fearless that the whole flock can be shot down one after the other. They are of rare occurrence, he having observed them only once."

Head and crest dull chestnut-brown, beneath which a black band, commencing just above the base of the bill, passes over the eye and extends to the occiput; cheeks and ear-coverts dull chestnut; throat greyish white, passing into the delicate grey of the under surface; on the sides of the neck the grey is interrupted by a beautiful semilunar mark, consisting of silvery white feathers, elevated above the rest, and abruptly terminated as if clipped by scissors; upper part of the back bluish grey, passing into the bright chestnut of the rump and upper tail-coverts; wing-coverts and spurious wing black; primaries and secondaries *lazuline-blue at the base and along the basal half of the external web*; *on their inner web, opposite the blue, a large patch of white*; *their apical half black*; first four primaries tipped with white, the rest of the primaries and secondaries slightly edged along the tip of outer web with white, and on the inner web largely with chestnut, which is the colour of the whole of the three last secondaries; tail black, the three lateral feathers largely tipped with white, narrowly edged with black; thighs black; upper mandible blue; under mandible greenish blue, edges greyish white; front of tarsi and toes green, behind fleshy brown; eyelash orange-yellow.

In some specimens the first four primaries have the shafts prolonged in the form of slender filaments, giving them a remarkably pointed appearance; the remainder of the primaries and all the secondaries have, on the contrary, a broad indented and abrupt termination.

In some specimens I find no trace of the beautiful lunate mark on the sides of the neck: these I had regarded as females; but as Mr. Blyth states that he believes the mark to be common to both sexes, I presume those without it must be immature birds.

The habitat of this fine species is Rangoon and the Tenasserim provinces.

The figures are of the size of life.



SERILOPHUS RUBROPYGIUS.

J. Gould and H.C. Richter del. et lith.

Hullmandel & Walton Imp.

SERILOPHUS RUBROPYGIUS.

Red-backed Eurylaime.

Raya rubropygia, Hodgs. Journ. As. Soc., vol. viii. p. 36.
Eurylaimus lunatus, Horsf. in Proc. of Zool. Soc., Part VII. p. 156.
Serilophus rubropygia, Blyth, Cat. of Birds in Brit. Mus. As. Soc. Calcutta, p. 196.—Bonap. Consp. Gen. Av., p. 169, *Serilophus*, sp. 1.—Cat. of Sp. and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 56, and App., p. 150.
Eurylaimus rubropygius, Gray and Mitch. Gen. of Birds, vol. i. p. 65, *Eurylaimus*, sp. 4. pl. xxiii.
Simornis (*Raya*) *rubropygia*, Hodgs.—Gray, Zool. Misc. 1844, p. 82.
Serilophus rubropygius, G. R. Gray, List of Birds in Brit. Mus. Coll., Part II. sec. i. p. 38.
Eurylaimus serilophus rubropygius, Horsf. Cat. of Birds in Mus. East Ind. Comp., p. 119.
Rai Sága, Nepaulese.

The native habitat of this species is said to be the south-eastern Himalayas, Assam, Sylhet and Arracan, where it doubtless takes the place of the *S. lunatus* of Rangoon and Tenasserim. It was first made known to science by B. H. Hodgson, Esq., who some years since forwarded examples to this country, which with his drawings of the species may be found in the national collection. Although bearing a general resemblance to the *S. lunatus*, it may at all times be distinguished by the absence of the black stripe above the eye, by its more grey colouring, by its less developed crest, by its longer and more squarely formed tail, and by the almost total absence of the lunate mark on the sides of the neck. Like the *S. lunatus*, it is a rare bird in the collections of Europe, and as is the case with that species, little or nothing is known respecting its habits and economy; it would therefore be a real boon to ornithological science if this blank could be supplied by some one resident in the native country of these birds paying attention to the subject, and forwarding the result of his observations to the scientific journals of India or Europe.

The sexes appear to differ but little in their colouring; the lunate mark on the sides of the neck is obsolete in some individuals, and is not very conspicuous at any time in the adult.

Head, crest, back and scapularies brownish grey, under surface paler grey; on each side of the neck a small semilunar mark of silvery white elevated feathers as in *S. lunatus*, but much less developed; wing-coverts black; primaries and secondaries lazuline-blue at the base and along the basal third of the outer web; on their inner web opposite the blue a patch of white extending on to the shaft; the remainder of their length velvety black, passing into blue on the four outer feathers, which are slightly tipped with white, the remainder blue at the tip, with an intervening oblique mark of white on their outer web and chestnut on their inner web; the three innermost scapularies, the rump and upper tail-coverts rich chestnut; tail black, the outer feather tipped with white, and the two next on each side with a large mark of white on the inner side near the tip; thighs black; under tail-coverts white; bill blue, bright on the upper mandible; under mandible greenish, with greyish white edges; tarsi and toes green in front, fleshy brown behind; irides reddish brown.

Habitat. Central and lower regions. Hodgs.

The figures represent the two sexes of the natural size: the plant is the *Hoya cinnamomifolia*.



PSARISOMUS DALHOUSIÆ.

PSARISOMUS DALHOUSIÆ.

Dalhousie's Eurylaime.

Eurylaimus Dalhousiæ, Jameson in Edinb. New Phil. Journ., vol. xviii. p. 389.—Wils. Zool. Ill., pl. 7.—Royle, Ill. Bot. &c. of Himalaya Mountains, vol. i. p. 76, vol. ii. pl. 7. fig. 2.—Gray and Mitch. Gen. of Birds, vol. i. p. 65, *Eurylaimus*, sp. 5.—Horsf. in Proc. of Zool. Soc., Part VII. p. 156.

Psarisomus Dalhousiæ, Swains. Class. of Birds, vol. ii. p. 261.—Bonap. Consp. Gen. Av., p. 169.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 195.—G. R. Gray, List of Birds in Brit. Mus. Coll., Part II. sec. i. p. 37.—List of Spec. and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 55.

Eurylaimus (*Crossodera*) *Dalhousiæ*, Gould, Icones Avium, vol. i.

Eurylaimus psittacinus, Müll.—Temm. Pl. Col., 598.

Raya Nipalensis, Hodgs.

Simornis (*Raya*) *sericeogula*, Hodgs.—Gray, Zool. Misc. 1844, p. 82.

Raya sericeogula, Hodgs. Journ. Asiat. Soc. Beng., vol. viii. p. 36.

Eurylaimus psarisomus dalhousiæ, Horsf. Cat. of Birds in Mus. East Ind. Comp., p. 117.

Rai, Nepaulese.

In nearly every group of birds there is one species rendered conspicuously different from its fellows, either by an excessive development of some part of its plumage, or by the beauty of its colour and markings: among the *Eurylaiminæ* the present species is the one thus distinguished, and certainly bears the palm both for beauty and elegance from all its congeners. This charming bird is, I believe, confined to the continent of Asia, where it enjoys the temperate and intertropical climates of Upper India, and those countries which stretch along the base of the Himalayas from Nepaul to Affghanistan. Dr. Royle procured specimens at Mussoree at an elevation of 6500 feet, while numerous others have been sent to the National Collection by Mr. Hodgson from Nepaul.

The first specimen that arrived in this country was brought home by the Countess of Dalhousie, to whom it was soon after dedicated by Professor Jameson. It is unquestionably the most splendid species of the family, and differs from all its congeners, not only in the more brilliant colouring of its plumage and greater elegance of form, but in its lengthened and graduated tail, in the beautiful frill of silky feathers which nearly surrounds the neck, and in the tuft, which springing from above each eye, gives the bird the appearance of having horns: these differences induced me to regard it as the type of a new genus, and, unaware that Mr. Swainson had assigned to it the name of *Psarisomus*, to propose for it the generic appellation of *Crossodera*: Mr. Swainson's name, however, having the priority, my own sinks into a synonym.

We look in vain for any difference in the colouring of the sexes; but the young are very different, having none of the contrasted markings of the adult, and only presenting indications of the rich colouring of maturity.

A large patch on the crown of the head, and a smaller one at the nape glossy light blue; the remainder of the head black, with the exception of a lengthened tuft on each side of the occiput of a yellowish green; throat and projecting frill of feathers on the sides of the neck beautiful yellow, edged with white below, and with a wash of green on the chin; upper surface fine deep grass-green; primaries black, margined with metallic blue at the base of the external web, opposite to which on the inner web is a spot of pure white; beyond the blue base of the external web the primaries are margined with bluish green; tail greenish blue; under surface lively verditer-green, tinged in some specimens with blue; bill green above inclining to vinous below with lighter edges; forepart of the tarsi and toes pea-green, their hinder and under parts fleshy brown; irides reddish brown, with a yellowish lash.

The Plate represents two adults and two young birds of the natural size.



SARCOPHANOPS STEERII, *Sharpe*.

J. Gould & W. Hart del. et lith.

Walter Imp.

SARCOPHANOPS STEERII, *Sharpe.*

Steere's Broadbill.

Eurylæmus steerii, Sharpe, Nature, August, 1876, p. 297.
Sarcophanops steerii, Sharpe, Transactions of the Linnean Society, 2nd series, Zoology, vol. i. part 5, pl. lii.

When the Marquis of Tweeddale (then Lord Walden) wrote his well-known memoir on the birds of the Philippine archipelago, the absence of Broadbills was a feature noticed by him, since the predominance of the family in the Malayan archipelago might have led us to expect to find it represented in these neighbouring islands. We have this want supplied in the subject of our Plate, which represents one of the most beautiful of the *Eurylæmidæ*, a bird discovered by Dr. Steere during his Philippine expedition. It is a remarkable species in many ways—the diverse colouring of the sexes and the peculiar arrangement of the colours being very striking, while the prominent eye-wattle justifies its generic separation from the other Broadbills. Its home is apparently the island of Basilan, which lies to the southward of Mindanao. This island had never been visited by a collector before Dr. Steere went there; and it was therefore to be expected that some novelties would be found; but of all the fine new species discovered by the above-named naturalist in the Philippines, this is undoubtedly the most interesting. He writes as follows:—

"I only fell in with this species on one single occasion in the island of Basilan, when I found a little flock of about seven individuals in the thick deep jungle towards the centre of the island. They were feeding on fruit, and were very tame, having probably never been disturbed before by a gun, and did not take flight until I had secured three of their number. Of all the birds I ever saw, this one has the most beautiful eye. I can only describe it as being of the colour of gold-stone; that is to say, it was like a piece of clear crystal crowded with specks of gold. All three specimens had the iris exactly the same."

The following is a transcript of Mr. Sharpe's description of this bird:—

Adult male.—Above dark grey; the rump and upper tail-coverts shining purplish vinous; tail bright chestnut; top of the head shining dark purplish brown; a ring round the neck and sides of the latter white; lores white, tipped with the same colour as the head; sides of face and entire throat black; rest of the body underneath lilac, the flanks slightly vinaceous, the lower abdomen whitish; under tail-coverts buffish; thighs grey; axillaries white; under wing-coverts black; wings black, the inner secondaries white at the base, the outer ones externally orange-yellow, showing a transverse alar bar; the first primary narrowly edged with white towards the base of the outer web; round the eye a large wattle of pale indigo; bill and feet pale indigo. Total length 6·8 inches; culmen 0·9, wing 3·45, tail 2·75, tarsus 0·85.

Adult female.—Similar to the male, but distinguished by its white (instead of lilac-coloured) breast.

The figures in the Plate represent the typical pair of this species, and are of the size of life.



UPUPA NIGRIPENNIS. *Gould*

UPUPA NIGRIPENNIS, *Gould.*

Indian Hoopoe.

Upupa minor, Sykes, Proc. Zool. Soc. 1832, p. 97 (nec Shaw).

Upupa senegalensis, Blyth, Journ. As. Soc. Beng. xiv. p. 189 (nec Swains.).—Id. Cat. Birds Mus. As. Soc. Beng. p. 46.—Layard, Ann. & Mag. Nat. Hist. xii. p. 174.

Upupa nigripennis, Gould, MSS. 1853.—Horsf. & Moore, Cat. Birds East-India Co. Mus. ii. p. 725.—Jerdon, Birds of India, i. p. 392.—Gray, Hand-list Birds, i. p. 102.—Holdsw. Proc. Zool. Soc. 1872, p. 435.—Hume, Nests and Eggs Indian Birds, p. 163.—Legge, Ibis, 1875, p. 286.—Hume, Stray Feathers, 1876, p. 458.—Legge, Birds of Ceylon, p 278.

Upupa ceylonensis, Reichenb. Handb. Scansoriæ, p. 320, tab. 595. fig. 4036.—David & Oustalet, Ois. de la Chine, p. 79.

Upupa indica, Bp. Consp. Vol. Zyg. p. 12.—Reich. Handb. Scansoriæ, p. 320, Taf. 596. fig. 4037.—Finsch & Hartl. Vög. Ost.-Afr. p. 198.—Sharpe & Dresser, Birds of Europe, art. on *U. epops*, in pt. vii.—Anders. West-Yunnan Exped. p. 578.

Upupa longirostris, Jerdon, Birds of India, i. p. 578.—Sharpe & Dresser, Birds of Eur. pt. vii.—Blyth & Walden, Birds of Burma, p. 69.—Hume, Stray Feathers, 1875, p. 89.—Armstrong, Stray Feathers, 1876, p. 315.—Hume, tom. cit. p. 458.—Id. Stray Feathers, 1878, p. 202.

It is now many years since I first noticed the difference existing between the Hoopoe of Southern India and the Common Hoopoe of Europe; and in the name of *nigripennis*, which I admit now to be somewhat inappropriate, I desired to point out the absence of a white bar on the crest, which is one of the distinguishing characters of the species. Another Hoopoe from the Burmese countries also wants the white subterminal bar on the crest-feathers, and, on account of its long bill, has been called *Upupa longirostris* by Dr. Jerdon, who also supposes that the presence of a white spot on the primaries is an additional character for the Burmese bird. The recent researches of naturalists, however, have tended to prove that it is difficult, if not impossible, to separate the Burmese Hoopoe from the species of Southern India and Ceylon; and the remarks of both Captain Legge and Mr. Hume show that this is the case. The latter gentleman writes respecting *U. longirostris*:—"Whether this species is a good one may be doubtful. In size typical males equal or exceed *Upupa epops*, but are more rufous and absolutely want even a trace of white on the crest, which *U. nigripennis*, Gould, our commonest Indian Hoopoe, often has, and have bills incomparably larger than this lattter species. I have seen no specimen of *U. epops* with a bill of more than 2·3 inches; the largest bill of *U. nigripennis* that I have ever yet noticed was 2·1 inches; the bill of one specimen of the present species, sent by Captain Feilden, measures 2·5 inches from forehead to point. The bills of the male Hoopoes are always longer than those of the females; but, sex for sex, I believe that typical *U. longirostris* (a quite young bird, sent by Mr. Oates, has the bill at front 2·2 inches) will be found always to have a bill conspicuously longer than *U. epops*, from which, moreover, it is further separated by the entire absence of white on the crest, while from *U. nigripennis* its much greater size at once divides it. But then my experience is that the majority of the birds are not typical, but intermediate forms, which it is very hard to separate from *U. nigripennis*.

"As for the presence or absence of the white spot on the first primary, on which Dr. Jerdon lays some stress, it is worthless as a diagnosis of all three species: specimens of each are before me, exhibiting the spot on both first primaries, on one of them only, and, lastly, on neither of them."

Captain Vincent Legge also states that Ceylonese specimens often have bills as long as those of the Burmese birds.

Dr. Jerdon gives the range of the Indian Hoopoe as throughout Southern India, extending through part of Central India to the north-west provinces and the Dehra Doon. According to Captain Legge it is an inhabitant of many of the dry districts in Ceylon, being very common both in the north and south-east of the island, but is not found in the south-west. The Burmese race extends from Pegu, Tenasserim, and Burmah to Siam, and is also found in the island of Hainan.

The best account of the habits of the present species is contained in Capt. Vincent Legge's 'Birds of Ceylon,' from which I make the following extracts:—"This charming bird frequents, in the island of Ceylon, open sparsely-timbered ground, scrub-dotted plains, cultivated fields, dry grazing-land in the jungles of the

interior, and patnas in the Central Province. In its nature it is a tame bird, and when scratching for insects, with its handsome crest depressed, allows a near approach without taking flight; when flushed it does not usually fly far, but takes refuge in a neighbouring tree, where it will sit quietly, giving out its soft and melodious call, *hōō-poo, hōō-poo*, accompanied by a movement of its handsome crest and an oscillation to and fro of its head at each note. In Jaffna it may be seen close to the houses of the English residents; and I have known it breed in the garden of a bungalow within a few yards of the verandah. It feeds entirely on the ground, strutting about with an easy gait, and scratching vigorously for insects in dry soil. It often scrutinizes the ordure of cattle, beneath which it finds an abundance of food. . . . . There is something very striking in the soft tones of this bird's note when heard amidst the chatter and chirping of the numerous Passerine birds which inhabit the Ceylon coast-jungles. Though perhaps uttered tolerably close to the listener, it seems to be wafted on the wild sea-breezes from afar off, and tends to rivet the sportsman's attention as he is returning to his bivouac beneath the already burning rays of an 8-o'clock sun, after a long morning's shooting in the parched-up scrubs of the northern coast. The flight of this Hoopoe is buoyant but undulating; and when pressed it is able to show considerable powers of wing; for in India a trained Hawk is said generally to fail in seizing it.

"The breeding-season in the north of Ceylon lasts from November until April; and possibly a second brood may be reared later on in the year, as Layard mentions the shooting of young birds in August. It breeds in holes of trees, showing in this respect, as well as in its anatomy, its affinity to the Hornbills. It sometimes, however, chooses a hole in a wall, in which I have known it to nest in the garden of an English residence in the Jaffna fort. Burgess writes, with reference to its habit of building in walls in India, that 'it breeds in the middle of April and May, constructing its nest in holes in the mud walls which surround the towns and villages in the Deccan.' The nest is composed of grass, hemp, and feathers. In the same district a nest made of soft pieces of hemp was found in a fort-wall. Miss Cockburn, again, tells us that at Kotagherry it selects holes in stone walls and in earthern banks to build in, making a mere apology for a nest of a few hairs and leaves, which in a short time has a most offensive smell. This, it is asserted, arises from the oily matter secreted by the sebaceous gland on the tail-bone, which, in the female, at the breeding-time assumes an intolerable stench, whence obtains the idea, according to Jerdon, that the bird constructs its nest of cow-dung."

The eggs of the present species are generally five or six in number; but they vary from three to seven. Mr. Hume states that they are of a pale greyish blue *tint*; but many are of a pale olive-brown or dingy olive-green, and every intermediate shade of colour is observable.

In the Plate I have figured a specimen from Southern India, and another from Burmah, to show the difference in the length of the bill. Both figures are of the natural size, and are drawn from specimens in my own collection.



HARPACTES DUVAUCELI

HARPACTES DUVAUCELI.

Duvaucel's Trogon.

Trogon Duvaucelii, Temm. Pl. Col. 291.—Gould, Mon. of Trogons, pl. 32.
—— *rutilus*, Vieill. 2nde édit. du Nouv. Dict. d'Hist. Nat., tom. viii. p. 313.—Ib. Ency. Méth. Orn., part iii. p. 1358.—LeVaill. Hist. Nat. des Courouc., pl. 14.
—— *fasciatus*, var. β, Lath. Gen. Hist. of Birds, vol. iii. p. 213.
—— *cinnamomeus*, Temm. Mon. of Trog. in Pl. Col.
—— (*Harpactes*) *Duvaucelii*, Gould, Mon. of Trogons, List of Plates, sp. 32.
Harpactes Duvaucelii, Swains. Class. of Birds, vol. ii. p. 337.
—— *rutilus*, Gray, List of Spec. of Birds in Coll. Brit. Mus., p. 44.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 5.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av., p. 150, *Harpactes*, sp. 1.—Horsf. and Moore, Cat. of Birds in Mus. East Ind. Comp., vol. ii. p. 712.
—— *Duvaucelii*, Gould, Mon. of Trogons, 2nd edit. pl.
Ramguba of the Natives of Malacca.

By most ornithologists the present species is considered identical with the bird figured by LeVaillant in his "Histoire Naturelle des Couroucous" under the name of *Trogon rutilus*; but as that figure does not agree with any member of the family, and must have been coloured after the artist's fancy, I consider M. Temminck perfectly justified in giving a new specific name to the bird here represented. Vieillot's description is equally as faulty as LeVaillant's figure: for he commences his description by stating that the head of the bird is of a sombre green; the back, scapularies, rump, and upper tail-coverts of a lively red, and the six middle tail-feathers of the same hue;—whereas the head is jet-black, the back and scapularies of a light cinnamon-brown, the upper tail-coverts fine scarlet, and the two middle tail-feathers only of a cinnamon-brown. LeVaillant's artist doubtless had this or some nearly allied species in view; but the colouring could not have been copied from a real specimen; and Vieillot's description was probably taken from the defective drawing. Not wishing to increase the specific names of the family, I have figured in the following Plate a species which I believe to be distinct from the bird under consideration; and as it has a uniformly-coloured back, and more nearly approaches to LeVaillant's figure, I have retained the name of *rutilus* for it, trusting that ornithologists will in future adopt this view of the subject. Had I given a new name, I might have been excused, and even commended for so doing.

For brilliancy of colouring nothing can surpass the tints that adorn the plumage of this little Trogon, which, unlike every other species of the family that has come under my notice, has the rump and lower portion of the back of a scarlet colour, vying in every respect with the rich and fiery hue of the breast. The admiration with which these birds must be viewed even when seen in preserved collections will enable us to form some idea of their still greater beauty in a state of nature, when darting meteor-like through the dark recesses of the dense and gloomy parts of the forests; when so seen, they cannot fail to call forth the admiration and increase the enthusiasm of the naturalist who has ventured to seek their haunts in those primitive districts.

I believe the true habitat of the present species, which is perhaps the most highly and beautifully coloured member of the group of birds to which it belongs, is Sumatra and Borneo, while the other (*rutilus*) is from Malasia.

The sexes of the *T. Duvaucelii* present the usual difference in the less brilliant colouring of the female, as may be clearly perceived by consulting the above description, or more readily by glancing at the accompanying Plate, where both are figured of the natural size.

The male has the head and throat jet-black; breast, under surface, rump, and upper tail-coverts of the finest scarlet; back reddish cinnamon-brown; wings black, the coverts and secondaries crossed by numerous fine lines of white; primaries margined at the base of their external webs with white; two centre tail-feathers dark cinnamon-brown, tipped with black; the two next on each side blackish brown; the three outer ones on each side blackish brown at the base, and largely tipped with white; bill, gape, and a naked space over the eye ultramarine blue; irides reddish brown; feet blue.

The female has the head dark brown; back dark cinnamon-brown, becoming lighter and washed with scarlet on the lower part of the back and upper tail-coverts; wing-coverts and secondaries alternately barred with ochreous and black; primaries dull black, margined externally with greyish white; under surface orange-brown, becoming lighter and washed with scarlet on the lower part of the abdomen and under tail-coverts; two centre tail-feathers light cinnamon-brown throughout their entire length; the remainder as in the male.



HARPACTES RUTILUS.

J. Gould and R.C. Reichter del. et lith.

Hullmandel & Walton, Imp.

HARPACTES RUTILUS.

Malacca Trogon.

Harpactes rutilus, Gould, Mon. of Trogons, 2nd edit. pl.

Enough has been said in my description of *Harpactes Duvauceli* respecting my reasons for applying the term *rutilus* as a distinctive appellation for this bird, which is a native of the Malayan Peninsula, and which, so far as I am able to judge from an examination of a vast number of specimens, never has the fine scarlet mark on the rump and upper tail-coverts; independently of this difference, the present species is a larger and more robust bird than the *H. Duvauceli*; it moreover has a thicker bill, and the whole of the upper plumage much more dense. Specimens frequently occur in collections sent from Singapore, but which I believe are generally made in Malacca; at this moment I have several of both sexes before me which I am sure are fully adult, and yet there is not the slightest trace of the scarlet on the rump of either of them; neither have I seen any indications of it in the specimens contained in the Collection at the British Museum, nor in those in the Museum of the East India Company, and in those in the possession of T. C. Eyton, Esq., and others. In a letter transmitted to me by A. R. Wallace, Esq., that gentleman says, "I think there are four species of Trogons in Malacca; but as I only obtained males of two of them, I cannot be certain; two of them are of the average size, and the other two smaller. Of the smallest I have only a female in a bad state of plumage; I believe it is *H. rutilus*. The bill and the skin of the gape are deep cobalt-blue; the culmen broadly, and the margins narrowly bordered with black or horn-colour. The bare skin above the eye is pale sky-blue; the irides dark brown, and the feet dusky blue." The bird referred to by Mr. Wallace is the bird here figured, and not the *H. Duvauceli*.

The usual difference is observable in the colouring of the sexes, which are correctly represented on the accompanying Plate, of the natural size.

The male has the head and neck black; all the upper surface rich reddish cinnamon; wings black, the coverts and secondaries crossed by numerous fine, irregular, wavy lines of white; primaries margined externally with white; breast, all the under surface, and under tail-coverts fine rosy scarlet; two centre tail-feathers cinnamon-brown, slightly tipped with black; the two next black; the three outer ones on each side blackish brown, largely tipped with white; bill and gape deep cobalt-blue; the culmen broadly, and the margins narrowly bordered with black or horn-colour; bare skin above the eye pale sky-blue; irides dark brown; feet dusky blue.

The female has the head and throat reddish brown; upper surface as in the male, but darker; breast cinnamon-brown; abdomen and under tail-coverts very light cinnamon-brown, washed with a rosy hue; primaries and secondaries black, crossed by narrow ochreous bands; two centre tail-feathers cinnamon-brown, the remainder as in the male.



HARPACTES HODGSONI, *Gould.*

Hermit and W. Hasler, del. et lith.

J. Walter, Imp.

HARPACTES HODGSONI, *Gould.*

Hodgson's Trogon.

Trogon Hodgsonii, Gould, Mon. Trog., pl. 34.

Harpactes Hodgsonii, Gould, Mon. Trog., syn. spec. *Harpactes*, sp. 6.—McClell. Proc. Zool. Soc., part vii. p. 166. Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 3.—Iid. Cat. of Spec., and Draw. of Mamm. and Birds presented to Brit. Mus. by B. H. Hodgson, Esq., p. 56.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 3.—Horsf. and Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. ii. p. 713.

——— *Hodgsoni*, Jerd. Birds of India, vol. i. p. 202.

Trogon (*Harpactes*) *Hodgsonii*, Gould, Mon. Trog., List of Plates, no. 34.

Harpactes erythrocephalus, Gray, List of Spec. of Birds in Brit. Mus., part ii. sect. i. p. 45.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, app. p. 322.

Pyrotrogon Hodgsoni, Bonap. Consp., vol. Zygod. p. 14. gen. 5 *e*. 39.—Cab. et Heine, Mus. Hein., Theil iv. p. 160.

Trogon dilectus, F. B. Hamilton's MSS., vol. i. p. 63.

Suda sohaghin, Bengalese (male), Dr. Hamilton.

Hummesha Peeara ("always thirsty"), Hindoos (male), Hamilton.

Cuchcuchea, Bengalese (female), Hamilton.

Sakvor pho, Lepchas, Jerdon.

Mr. Jerdon and some other ornithologists are of opinion that the Trogons to which I have assigned the specific appellations of *erythrocephalus* and *Hodgsonii* are identical; but, as I have pointed out in my 'Monograph of the Trogonidæ,' they differ considerably in size, and somewhat in their colouring; and, until I have further evidence than has yet been adduced of their identity, I shall continue to regard them as constituting two species. However this may be, the accompanying figures were taken from specimens killed in the great Himalayan range, and consequently represent the two sexes of the true *Harpactes Hodgsoni*.

The following interesting extract from Mr. Jerdon's valuable work the 'Birds of India' comprises nearly all that has been recorded respecting the history of this fine bird:—

"This handsome Trogon," says Mr. Jerdon, "is found in the Himalayas, from Nepaul eastward, in Assam, Sylhet, Arrakan, and Tenasserim. It prefers hilly places at from 2000 to 4500 feet. At Darjeeling I found it chiefly at about 4000 feet, frequenting dark-shaded valleys and flying from tree to tree at no great elevation, or a few of them together, keeping near the same spot, making sallies every now and then, and seizing insects on the wing. It feeds on Coleoptera chiefly. Tickell, who lately observed it on the Tenasserim hills, about 3000 feet and upwards, says that it flies in small troops, is active and vociferous in the morning, solitary and quiet during the heat of the day. I had the eggs of the Trogon brought me at Darjeeling: they were said to have been taken from a hole in a tree; and were two in number, white and somewhat round. There was no nest, it was stated; only some soft scrapings of decayed wood."

The male has the head, neck, and breast deep blood-red, separated from the rich scarlet of the under surface by a narrow line of white; back and upper tail-coverts cinnamon-brown, brightest on the rump; wing-coverts and tertiaries striated with fine wavy lines of black and white; primaries black, margined on their outer webs with white; two centre tail-feathers rich chestnut-brown, tipped with black; the next on each side black, with two thirds, from the base, of the outer web, and a fine line down the shaft on the inner web, rich chestnut-brown; the next on each side black, with the basal half of the outer web rich chestnut-brown; the three lateral feathers on each side black, largely tipped with white, which extends some length down the outer web; "bill deep smalt-blue, becoming black along the culmen and at the tip; irides chestnut-brown; orbital skin deep lavender-blue; legs and feet pale lavender" (Jerdon).

The female differs in having the head, neck, breast, and upper surface cinnamon-brown, palest on the rump and upper tail-coverts; under surface pale crimson, separated from the cinnamon of the throat, as in the male, by a narrow crescent of white; and the undulations on the wing black and brown instead of black and white.

The Plate represents the two sexes, of the natural size. The plant is the *Benthamia fragifera*.



HARPACTES DIARDI.

HARPACTES DIARDI.

Diard's Trogon.

Trogon Diardii, Temm. Pl. Col. 541.—Gould, Mon. Trog., pl. 30.

Harpactes Diardii, Swains. Class. of Birds, vol. ii. p. 337.—Gould, Mon. Trog., syn. spec. gen. *Harpactes*, sp. 2.—Gray & Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 6.—Iid. List of Spec. of Birds in Coll. Brit. Mus., part ii. sect. i. p. 44.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 5.—Horsf. & Moore, Cat. of Birds in Mus. East-Ind. Comp. vol. ii. p. 716.

Trogon (*Harpactes*) *Diardii*, Gould, Mon. of Trog., List of Plates, no. 30.

Pyrotrogon Diardi, Cab. et Heine, Mus. Hein., Theil iv. p. 156.

This is one of the most magnificent of the Trogons inhabiting the Old World, and is distinguished from all its congeners by the freckled markings of the outer tail-feathers—a character in which it assimilates to some of the American members of the family.

The *Harpactes Diardi* must be a most conspicuous object among the leafy branches of the trees in the parts of the Old World wherein it is destined to dwell. These are Malacca, where it was obtained by Mr. Wallace; the island of Sumatra, specimens from whence, formerly in the collection of the Baron Laugier, are now in the British Museum; and Borneo, where it appears to be very numerous—that is, if we may conclude so from the many examples which are sent to Europe, either direct or by way of Singapore. Some slight differences occur in the colouring of specimens from the various localities above mentioned, but are not of sufficient importance to entitle them to be regarded as distinct. Some have the crown of the head of a deep red, while the same part in others is reddish black; some have a faintly indicated crescent of white separating the black of the throat from the scarlet of the abdomen, while in others the black and scarlet meet abruptly. I at one time considered that the Malacca birds could be at all times recognized by the lighter colouring of the upper part of the breast; but I have a specimen from Borneo in which it is as apparent as in those from the Malayan peninsula.

The female, as will be seen on reference to the Plate, has the head and chest brown, in lieu of the deep black colouring of the opposite sex, and freckles of brown and yellow on the shoulders and wing-coverts, instead of black and white; in other respects her colouring is very similar.

I am indebted to Mr. Wallace for a knowledge of the colouring of the soft parts of this species, the particulars of which he kindly transmitted to me in a letter dated Singapore, September 30, 1854; unfortunately he did not at the same time furnish me with any account of the bird's habits and economy, which will doubtless, when known, prove highly interesting.

The male has the crown of the head deep blood-red in some specimens, reddish black in others; throat and chest black; on the nape a band of rose-pink; back and upper tail-coverts dark sandy brown; wings minutely barred with wavy lines of black and white; primaries black; breast and under surface carmine-red, separated in some specimens from the black of the throat by an obscure crescent of white; two middle tail-feathers rich chestnut-brown, with a bar of black at the tip, the next on each side black, the remainder black at the base, and freckled for the remainder of their length with black and white; bill blue, with the culmen and tips of the mandibles black; gape and orbits purplish violet.

The differences of the female have been pointed out above.

The Plate represents the two sexes, of the size of life. The plant is the *Hoya coriacea*.



HARPACTES ORESKIOS.

HARPACTES ORESKIOS.

Mountain Trogon.

Trogon oreskios, Temm. Pl. Col. 181.—Id. Gen. Courouc., sp. 8.—Steph. Cont. of Shaw's Gen. Zool., vol. xiv. part 1, p. 220.—Less. Traité d'Orn., p. 121.—Gould, Mon. Trog., pl. 36.

Harpactes Gouldii, Swains. Class. of Birds, vol. ii. p. 337.

——— *oreskios*, Gould, Mon. Trog., syn. spec. *Harpactes*, sp. 8.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 8.—Iid. List. of Spec. of Birds in Coll. Brit. Mus., part ii. sect. i. p. 45.—Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 8.—Horsf. and Moore, Cat. of Birds in Mus. East-Ind. Comp., vol. ii. p. 716.

Trogon (*Harpactes*) *oreskios*, Gould, Mon. Trog., List of Plates, no. 36.

Oreskios Gouldi, Bonap. Consp., vol. Zygod. p. 14, gen. 5 *d.* 41.

Orescius Gouldi, Cab. & Heine, Mus. Hein., Theil iv. p. 161.

It is somewhat singular that neither Sir Stamford Raffles nor Dr. Horsfield has furnished us with any particulars respecting this species of Trogon, since it is an inhabitant of the island of Java, to which the researches of both those departed gentlemen were principally directed. I believe that the East-India Museum, which is so rich in many other birds from that island, does not contain a single example of the present one. That it is tolerably common there, is certain; for a large number of skins have been from time to time transmitted thence to Europe; and at the present moment I have four very fine skins from that island lying before me, and it is from these that my figures in the accompanying Plate have been taken. I mention this because Mr. Blyth, in a note to me, says the specimens of "*H. oreskios* in Mr. Wallace's collection from Java are distinct from the Burmah specimens figured in your Monograph of the Trogonidæ"; I think, however, that Mr. Blyth must in this instance be mistaken; for if a comparison be instituted between the figures alluded to and those in the opposite Plate, it will be seen that they do not differ. Java is certainly the country of the bird here represented: if the bird from the Malayan peninsula should, after a careful comparison, prove to be sufficiently different to warrant its being considered specifically distinct, a figure of it will be found in the present work.

The *Harpactes oreskios* differs from all its congeners in the absence of any naked skin round the eyes; it is also markedly different in its colouring, orange taking the place of scarlet in the other members of the genus, particularly on the breast and under surface. On the whole it is a richly coloured bird, and must be very beautiful in a state of nature; but with the departure of life the glory of its plumage disappears, never again to be seen in dried skins.

The sexes offer the usual differences, the female being less brilliant, and having the wings barred with yellow and brown instead of black and white.

When treating of this species in the 'Planches Coloriées,' Temminck states that science is indebted to MM. Diard and Reinwardt for the first knowledge of its existence; and Kuhl informs us that it inhabits woods and mountains, and subsists on insects.

The male has the crown of the head, throat, and chest greenish yellow; back and upper tail-coverts rich deep chestnut; wings black, their centres rayed with strong bars of white; primaries margined externally with white; two centre tail-feathers rich deep chestnut, crossed at the tip with a narrow band of black, the two next on each side black; three outer feathers black at the base and white at the tip; breast and flanks rich orange, becoming paler on the belly and vent; thighs black; bill black at the tip, yellow at the base; legs and feet flesh-colour.

The female has the head, chest, and all the upper surface dull brown, becoming richer on the lower part of the back and the two middle tail-feathers; the transverse marks on the centre of the wings yellow instead of white, and the under surface yellow, inclining to orange only on the flanks.

The figures represent the two sexes, of the size of life. The plant is the *Hoya* (*Otostemma*) *lacunosa*.



HARPACTES REINWARDTI.

HARPACTES REINWARDTI.

Reinwardt's Trogon.

Trogon Reinwardti, Temm. Pl. Col. 124.—Id. Gen. Courouc., sp. 5.—Less. Traité d'Orn., p. 122.—Gould, Mon. Trog., pl. 27.

—— *Reinwardtii*, Steph. Cont. of Shaw's Gen. Zool., vol. xiv. part 1, p. 221.

Apaloderma Reinwardii, Swains. Class. of Birds, vol. ii. p. 337.

———— *Reinwardtii*, Gould, Mon. Trog., syn. spec. *Apaloderma*, sp. 2.

Trogon (Apaloderma) Reinwardtii, Gould, Mon. Trog., List of Plates, no. 27.

Harpactes Reinwardtii, Hartl. Verz. Mus. Brem., p. 12.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 9.—Iid. List of Spec. of Birds in Coll. Brit. Mus., pt. ii. sect. i. p. 45.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 9.

Apalharpactes Reinwardtii, Bonap. Consp., vol. Zygod. p. 14. gen. 5 *e*. 43.

Trogon sulphureus, Begbie, Bonap. *ibid.*

Hapalarpactes Reinwardti, Cab. et Heine, Mus. Hein., Theil iv. p. 162.

It gives me great pleasure to assist in perpetuating the names of two of the scientific travellers of Holland, by directing attention to very interesting species of Trogons which have been named after them, *Harpactes Reinwardti* and *H. Mackloti*. With Professor Reinwardt (to whom the present species has been dedicated) I enjoyed a long personal acquaintance; with Macklot, however, such was not the case, for I never saw him.

It would seem at first sight that these two island species offer a very close alliance to the *Hapaloderma narina* of South Africa, and to a certain extent they do, but it is more in the general similarity of the colouring of their upper surface, than in structure; the whole of the Asiatic, continental and insular Trogons cannot in fact be separated, for they are all very similar in their form. Some differences are observable in the colouring of the sexes of the green-backed species; but they are all of a trivial character.

The native country of this fine bird is Java, where it was discovered by Professor Reinwardt, and where Mr. Wallace informs me it inhabits the western parts of the country, up to an altitude of 6000 feet above the sea.

In the account of the *H. Reinwardti* given in my 'Monograph of the Trogonidæ,' I stated that I was indebted to my late valued friend Temminck for an example of the young, a figure of which is given in the accompanying Plate, and, as illustrating the change the bird undergoes between youth and maturity, will not be uninteresting. It will be seen that although, in this immature state, it exhibits a similarity to the adult, particularly in the colours of the back and tail, it differs in the markings of the wings and in the rufous-brown tint of the breast.

I am indebted to the trustees of the Derby Museum at Liverpool for the loan of the examples from which the accompanying figures were taken.

The male has the crown of the head, back, wing-, and upper tail-coverts dark shining green; centre of the wing dark green, crossed by numerous narrow wavy lines of dull yellow; primaries greyish black, margined externally with white; six middle tail-feathers dark glossy green; the three lateral feathers on each side of the same hue at the base of the outer web, and greenish slate-colour on the inner, the outer feather margined with white throughout the entire length of its outer web, the next on each side from near the base to the tip, and the third for about half its length from the tip, all three tipped with white; throat pale orange-yellow; across the breast a broad band of yellowish olive-brown; breast and all the under surface rich orange-yellow; "bill deep red; orbits cobalt-blue; space between the orbits and bill pea-green; feet orange."

For a knowledge of the colouring of the soft parts, as given above, I am indebted to the celebrated traveller, A. R. Wallace, Esq.

The female has a similar arrangement of colouring; but the green of the head is duller; the throat is pale yellowish white; the band across the breast is greyish brown, without any of the yellow suffusion seen in the male; the orange of the abdomen is much paler; and the wavy lines of yellow on the centre of the wing are broader, paler, and more conspicuous.

The Plate represents a male and a young bird, of the size of life. The plant is the *Medinilla Javensis*.



HARPACTES MACKLOTI.

Gould and H.C. Richter del. et lith.

T. Walter imp.

HARPACTES MACKLOTI.

Macklot's Trogon.

Trogon Mackloti, Müll. Tijdschr. Nat. Gesch., 1835, p. 336. tab. 8. fig. 1.
Harpactes Mackloti, Gray and Mitch. Gen. of Birds, vol. iii. App. p. 4.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 10.
Apalharpactes Mackloti, Bonap. Consp., vol. Zygod. p. 17. gen. 5 *e*. 44.
Hapalarpactes Mackloti, Cab. et Heine, Mus. Hein., Theil iv. p. 163.

"I HAVE named this species," says Dr. Müller, "in memory of my unfortunate friend and companion for many years, Macklot. It is smaller than the *Trogon Reinwardti* of Temminck, but very much resembles it. The chin, the throat, the whole of the belly, and the under tail-coverts are yellow, on a white ground; the remainder of the head and neck, and a broad band across the chest, olive green; the back has a beautiful metallic lustre of bottle-green, with a large rust-coloured spot on the uropygium. The middle and larger upper wing-coverts, the tertiaries, and the outer margins of the secondaries are adorned with fine transverse golden-yellow stripes; tail dark green, with a steel-blue tint; the six middle feathers equal in length, and uniformly-coloured; the three outer on each side have white terminal points, and each has a white margin along the outer edge; toes and nails red; eye blackish brown; naked orbits beautiful blue; space immediately behind the angle of the mouth light green; lower eyelids with a yellowish-white spot.

"Total length 10 $\frac{7}{12}$ in., French measure; tail $5\frac{11}{12}$; the coral-red bill, from the angle of the mouth to the point, $9\frac{1}{2}$ lines long, 7 lines broad at the base; expanse of the wings 1 foot 2 inches and 9 lines.

"The female is much the same as to colour, but has not the rusty-brown spot on the uropygium, and the yellow stripes on her wings are smaller and fainter.

"The bird was found in the woods on the southern side of the mountains of Singallang in Sumatra."

Thus much has been written respecting this bird by Dr. Müller, with whose opinion in considering it distinct from *H. Reinwardti*, I fully concur; as yet, however, I have never met with an example bearing the rusty-brown mark on the uropygium. Can this be a mark of immaturity, and Dr. Müller unconsciously have taken his description from a specimen which had not yet completed its second moult?

The *H. Mackloti* is much inferior in size to the *H. Reinwardti*. By some they might be considered races of the same species; but I have never seen races differing in size to such an extent. That they represent each other in the respective islands they inhabit is certain, and that we are right in considering them distinct species there can be no doubt.

As in the case of the *H. Reinwardti*, I have been obliged by the trustees of the Derby Museum at Liverpool with the loan of examples of this species, in furtherance of the present work.

The figures are of the size of life. The plant is the *Plectocomia Assamica*.



HARPACTES KASUMBA.

HARPACTES KASUMBA.

Kasumba Trogon.

Trogon Kasumba, Raffl. in Linn. Trans. vol. xiii. p. 282.
——— *fasciatus*, Temm. Pl. Col. 321.—Less. Traité d'Orn. p. 121.
——— *Temminckii*, Gould, Mon. of Trog. pl. 29.
——— *flagrans*, Kuhl, Tydsch. Nat. Gesch. 1835, p. 336.
Harpactes Kasumba, Blyth, Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.
——— *Temminckii*, Swains. Class. of Birds, vol. xi. p. 337.—Gray, List of Birds in Brit. Mus. part ii. sec. i. p. 44.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Harpactes*, sp. 4, and vol. iii. App. p. 4. App. to p. 71.
Kasumba, of the Sumatrans.

Great confusion respecting the name of this species has existed from the days of the lamented Raffles to the present time, and instead of its being cleared up, it would seem to have been added to by every writer who has had occasion to mention the bird; I myself, among others, have fallen into error on the subject; and even Mr. Blyth, after enumerating it under the name of *Kasumba* in his "Catalogue of the Birds in the Museum of the Asiatic Society of Calcutta," states in an appendix that perhaps that name ought to give place to that of *Kondea*, which name, I may remark, would seem not to be a scientific appellation, but merely a trivial one applied to specimens in the Paris Museum. It will be seen that I have retained that of *Kasumba*, which I think it likely was the one first assigned to it.

The countries inhabited by this species are Malacca, Sumatra, and Borneo, from all of which I have specimens in my own collection.

In a letter lately received from Mr. Wallace, now (1856) engaged in exploring the Islands of the Indian Archipelago, that gentleman, writing from Singapore, says, "You will think I have forgotten to write to you about the Trogons, but I have not neglected the subject. I remained two months on this island, where the jungle is now only to be found in small patches, but did not meet with any, and I doubt if there be a Trogon in the island. At Malacca, however, from whence I have just returned, I met with them. I think there are four species, but as I only obtained males of three, I cannot be certain. Two are of an ordinary size, and two are smaller. One of the larger I take to be *Harpactes Kasumba*: I send you a coloured sketch of the soft parts that you may make a correct drawing for your work. The habits and economy of the Indian Trogons assimilate closely to those of the American."

As nothing can exceed the beauty of this noble bird, the appearance the males must present in their native forests cannot fail to be attractive in the extreme, especially when the rich scarlet colouring of their breasts is contrasted with the equally brilliant green of the luxuriant vegetation of Malacca.

The sexes present a marked difference in the colouring of their plumage, as will be seen on reference to the opposite Plate, where they are accurately depicted.

I believe that the habits of the *Harpactes Kasumba* are somewhat solitary, and that the bird seldom quits the secluded parts of the forests which are its favourite place of resort.

The male has the head, throat and chest jet-black; breast, abdomen, and under tail-coverts deep rose-red, separated from the black of the chest by a crescentic band of white; from below the eye round the back of the neck a narrow band of red; back and upper tail-coverts yellowish brown; wings black, the coverts and tertiaries transversely rayed with fine irregular lines of white, and the shafts of the primaries white at the base; two middle tail-feathers chestnut-brown, tipped with black; the two rest on each side wholly black, the remainder black at the base, and white for the rest of their length, with dark shafts; orbits light violet-blue, becoming of a more fleshy hue near the eyes; bill blue; gape light violet-blue; irides dark brown; feet brown.

The female differs in having the head and throat greyish brown instead of black; in the white band on the breast being much less conspicuous, the under surface sandy brown; and the markings of the wings bolder, and of a sandy hue, instead of pure white; in other respects she is very similar, but the colours are less brilliant.

The Plate represents the two sexes of the size of life.



HARPACTES FASCIATUS.

Gould and R.C. Bocklet del. et lith.

Hullmandel & Walton Imp.

HARPACTES FASCIATUS.

Fasciated Trogon.

Trogon fasciatus, Gmel. Edit. Linn. Syst. Nat. tom. i. par. i. p. 405.—Lath. Ind. Orn. tom. i. p. 200.—Ib. Gen. Syn. vol. ii. p. 492.—Penn. Ind. Zool. p. 35. pl. iv.

Trogon Ceylonensis, Briss. Orn. 8vo, vol. ii. p. 91.

——— *Malabaricus*, Gould in Proc. of Zool. Soc. part iv. p. 26.—Ib. Mon. of Trog. pl. 31.—Gray and Mitch. Gen. of Birds, vol. i. p. 71, *Trogon*, sp. 1.—Jerdon, Mad. Journ. of Sci. vol. xi. p. 233.

Harpactes Malabaricus, Swains. Class. of Birds, vol. ii. p. 337.—Ib. List of Birds in Coll. Brit. Mus. part ii. p. 44.

——— *fasciatus*, Blyth, Drafts of a Fauna Indica (third tribe of the Picæ), p. 8.—Ib. Cat. of Birds in Mus. Asiat. Soc. Calcutta, p. 80.

Kufni Churi, of some Hindoos.

Kurna, of the Mahrattas.

Kakerni Hukki, of the Canarese.

Rantvan Kondea, of the Cingalese, Blyth.

The island of Ceylon and the southern part of the Peninsula of India are the true habitat of the *Harpactes fasciatus*; it there represents the *H. Kasumba* of the opposite peninsula of Malacca. It has been long known to writers on natural history; a description of it being included in Gmelin's "Systema Naturæ" and a figure in Pennant's "Indian Zoology," published in 1790. It is, however, to more recent observers that we are indebted for the little that is even now known of its habits and economy. Mr. E. L. Layard informs me that in Ceylon "it inhabits the high tree-jungle which the natives call *Mookoolaney*; it there frequents the summits of the loftiest trees, and feeds on spiders, Mantidæ and Coleoptera; it sits across a branch with the head drawn down between the shoulders; it is by no means a solitary bird, being found in small parties of three or four in number, which always follow each other when one takes wing. It does not appear to extend its range beyond Kandy. Dr. Kelaart says it is sometimes very numerous at Newera Elia; he likewise states that the Cingalese call it *Ratwon Kondea*, but the natives in the neighbourhood of the localities in which I found it were ignorant of its existence and had no name for it."

So much for the bird in Ceylon. I now proceed to give the interesting note respecting it included in Mr. Jerdon's "Catalogue of the Birds of the Peninsula of India":—

"This very richly-plumaged Trogon is of rare occurrence in Southern India, and I have only found it in the densest portions of the jungle in Malabar and the Wynaad. It is usually seen seated motionless on the branch of a tree, occasionally flying off to capture an insect, and sometimes, though rarely, returning to the same perch, generally taking up a new position, and wandering much about from tree to tree. I almost always observed it solitary, occasionally in pairs, and on one occasion four or five were seen together. In the stomach I have always found fragments of large Coleopterous insects. The Hindoostanee name *Koofnee chooree* is given (says Mr. Elliott) 'from the bird sitting with its head sunk in the shoulders, as if it had no neck, or as if dressed in a faqueer's koofnee.'"

Mr. Blyth remarks that this species is enumerated in Mr. Elliott's "Catalogue of Birds inhabiting the South Mahratta country," and no doubt it is the species obtained by Captain Tickell at Dampára in Dholbhúm, which would give it an extensive range in the Indian peninsula.

The male has the head, neck and breast sooty black, bounded below by a narrow crescent of white, separating the sooty black of the breast from the rich carmine-red of the under surface; upper surface orange-brown, becoming paler and brighter on the rump and upper tail-coverts; wings black, the coverts and secondaries crossed by numerous fine irregular bars of white, and the primaries narrowly edged externally with the same hue; two centre tail-feathers chestnut, narrowly tipped with black, the next on each side chestnut at the base and black at the tip, the chestnut advancing in a bifurcated form towards the tip of the outer web; the next on each side entirely black; the three lateral feathers on each side black at the base, largely tipped with white, the white advancing on the margin of the outer web nearly to the base, and the black along the shaft to the tip; irides deep brown; bill and orbits fine deep cobalt-blue; legs light blue.

The female differs in having the head and neck brown, with a yellowish tinge on the chest; the under surface rich ochraceous; and the bars on the wings ochraceous brown instead of white.

The figures represent the two sexes of the natural size.



HARPACTES ARDENS.

J. Gould and H.C. Richter del. et lith.

Walter & Cohn Imp.

HARPACTES ARDENS.

Rosy-breasted Trogon.

Trogon ardens, Temm. Pl. Col. 404.—Gould, Mon. of Trog., pl. 35.
—— (*Harpactes*) *ardens*, Gould, Mon. of Trog., List of Plates.
Harpactes ardens, Gray, List of Spec. of Birds in Coll. Brit. Mus., part iii. sec. i. p. 44.—Gray and Mitch. Gen. of Birds, vol. i. p. 70, *Harpactes* sp. 7.—Bonap. Consp. Gen. Av., tom. i. p. 151, *Harpactes*, sp. 7.—Cassin, Unit. States Expl. Exp., Mamm. and Orn., 1858, p. 229.
Pyrotrogon ardens, Bonap. Consp. Vol. zygod. in Ateneo Italiano, no. 8, Maggio, 1854.
Harpactes rodiosternus, Peale, Zool. Unit. States Expl. Exp., Birds, 1st edit. 1848, p. 166.

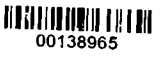
Since 1838, when I published the first edition of my 'Monograph of the Trogonidæ,' wherein I stated that my late friend M. Temminck's figure of the female, published in his 'Planches coloriées des Oiseaux,' was taken from the then unique individual in Baron Laugier's collection, and my own from a specimen of each sex transmitted to the Zoological Society by H. Cuming, Esq., numerous examples of both sexes have reached this country; and I have also personally examined the specimens in the Museum at Washington, which had been obtained by the United States Exploring Expedition in the Island of Mindanao—the locality whence came Baron Laugier's specimen.

The researches of the American naturalists enable me to give a more correct representation of this beautiful bird than I could when my Monograph was published, since they have carefully noted the colouring of the soft parts. The information respecting this species of Trogon is still, however, extremely meagre, the following short note, transcribed from the 'Mammalogy and Ornithology of the United States Exploring Expedition, 1858,' being all that has been recorded:—"Both Dr. Pickering and Mr. Peale mention the occurrence of this fine species on the Island of Mindanao, one of the Philippines. The latter remarks, 'Our specimen was killed on the 31st of January, near Sambuanga, in the Island of Mindanao. It sits crosswise on the small branches of trees and bushes, and is very active in taking insects on the wing. The clear sunlight, at three o'clock in the afternoon, did not appear to incommode it, or others observed at the same time.'"

The male has the head, back of the neck and ear-coverts dark blood-red, approaching to black on the forehead and ear-coverts; throat black; back and upper tail-coverts cinnamon; wing-coverts and secondaries black, crossed with fine irregular lines of white; primaries black, margined externally with white; two centre tail-feathers reddish chestnut, tipped with black; the two next on each side wholly black; the three outer ones blackish brown at base, largely tipped with white; the shafts and a series of tooth-like markings on the inner webs blackish brown; chest delicate rose-colour, the remainder of the undersurface scarlet; "bill bright yellow, the base green; ophthalmic region ultramarine blue; inside of the mouth yellow; feet olive-green; the palms and claws yellow; irides brown."

The female has the crown of the head, cheeks, and upper surface dark cinnamon-brown; throat clouded with blackish brown; breast and all the under surface light sandy brown, becoming of a yellower hue on the under tail-coverts; wing-coverts and secondaries blackish brown, crossed with lines of sandy brown; tail as in the male.

The Plate represents two sexes, of the size of life. The plant is the *Hoya cinnamomifolia*.


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